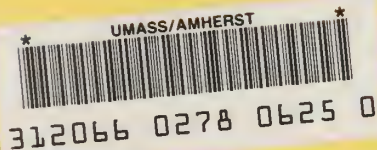


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VOCATIONAL EDUCATION AND WORKFORCE PLANNING INFORMATION REPORT 1980 MASSACHUSETTS



LABOR AREA RESEARCH PUBLICATION

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Job Market Research

Massachusetts Division of Employment Security

VOCATIONAL EDUCATION PLANNING

AND

WORKFORCE INFORMATION REPORT

1980

COMMONWEALTH OF MASSACHUSETTS

Prepared by: Mary-Ellen Steller
Research Analyst
and
Peter Maloy
Senior Labor Market Economist
Labor Area Research Department
Massachusetts Division of
Employment Security
Charles F. Hurley Building
Government Center
Boston, Massachusetts 02114

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Introduction

During the second half of the 1979-1980 school year, the Labor Area Research Department is issuing a series of reports containing vocational education planning information for each of the Commonwealth's major labor area. The purpose of this report is to provide a state overview of planning information and a statewide context for the information contained in each of the labor area studies.

Vocational education is intended to fill two needs: the need of employers for a trained workforce, and the need of future job-seekers to acquire skills enabling them to find suitable employment when they graduate. Thus, economic expansion is aided while potential structural unemployment is reduced.

No report or series of reports on vocational education is as valuable a resource as a good working relationship between the school personnel and the local business community. Therefore, the purpose of this series is to provide school, business and community planners with information to help them better anticipate future economic trends and occupational demands and to supplement local input in planning workforce training programs. This publication is not intended to be used alone, but as an adjunct to the vocational education reports for the labor market areas.

The information contained within this report includes: 1. industry growth since 1974-1975, 2. industry growth between 1975-1978, 3. an occupational profile of selected recession resistant/resilient industries, 4. an analysis of labor demand by occupation until 1985, and 5. an historical overview of labor supply based on the Division of Employment Security active applicant files.

I. Occupational Job Opportunities

Selecting a career, whether you are a high school student entering the workforce or are already in the workforce, can be a frustrating decision. Proper counseling, and adequate exposure to various training opportunities, can often be as important as the training itself.

The individual making the vocational choice needs both self-exploration and occupational information. The job seeker must find an occupation for which he/she is capable of being trained (aptitude and physical capacities), which he/she will enjoy (interests and needs), which will satisfy basic survival needs (employment wages) and which is available (labor market conditions). Through vocational training and work orientation (part-time employment, summer jobs, and internships), individuals can test both their aptitude for and interest in an occupation.

Vocational counseling assists the individual to synthesize values, attitudes, needs, family and financial pressures, preferences for life style, physical capacities, aptitudes, skills, and interests into vocational alternatives. Occupational and environmental information assist the individual to integrate the vocational alternatives with the needs and the requirements of potential employers (labor demand).

A student interested in working with ideas may be challenged by the occupation of electronic technician. Another student who feels a strong need to work with people may wish to pursue the occupation of dental hygienist. The occupation of a machinist may fill the needs of a student interested in working with tangible things.

The industry a student chooses to work in may add to the fulfillment of needs and interests.

A secretary who has a strong need for financial security and stability may find that a life insurance company or a hospital work site adds to job satisfaction. This individual may wish to know which industries are recession resistant.

The secretary with the need for job security may choose to work in non-energy intensive manufacturing industries versus energy-intensive industries. However, a secretary who has a strong need for challenge may be interested in working in a growth industry such as electronic components.

For young adults entering the working world and for displaced homemakers seeking employment for the first time, education, combined with exposure to work, may be beneficial to insure the completion of training and actual employment.

Work samples and job simulation kits in government sponsored training programs, vocational educational schools, and community colleges can assist the individual in making training choices appropriate to their aptitude and need levels. Work-study programs and internships in vocational-technical schools and community colleges can help students to test their commitment to a particular occupation. Before considerable time and money is spent on training it is important that an individual realize that he/she is not suited for an occupation and the demands of the lifestyle associated with the job.

II. Industry Growth

Beginning in 1975, the 1972 Standard Industrial Code (SIC) was used to define the industries subject to the Massachusetts Employment Security Law. For the earlier years of this decade, the 1967 SIC codes were used. Many industrial classifications were unaffected by the SIC revisions. The sectors that experienced the greatest redefinitions were manufacturing, services, and government.

The timing of the code change makes our time-series analysis of the impact of the 1974-75 recession somewhat difficult. We have called "recession resistant" those industries which showed growth from 1974 to 1975, despite the general economic downturn. "Recession resilient" industries are those which grew from 1975 to 1977; that is, from the trough of the recession until the broadly based economic expansion in 1978. These industries regained their 1974 employment levels. Those three digit SIC industries which fit either criteria are listed in Table 1. We have purposefully excluded from the listing any industry significantly effected by the industrial coding change. Unfortunately, this eliminates many manufacturing (especially some high-tech) and service industries which have been expanding significantly. Therefore, Table 2 is a list of those industries which have had the largest employment increases since 1975. Not surprisingly the manufacturing and service sectors figure very prominently. High-tech industries that grew by over 2,500 from 1975 to 1978 include: Office, Computing and Accounting Machines (SIC 357); Electrical Industrial Apparatus (SIC 362); Household Appliances (SIC 363); Electronic Components and Accessories (SIC 367); Measuring and Controlling Instruments (SIC 382); Medical Instruments and Supplies (SIC 384); and Photographic Equipment and Supplies (SIC 386). Among nonmanufacturing industries that had large increases in employment were: Eating and Drinking Places (SIC 581); Hotels, Motels, and Tourist Courts (SIC 701); Personnel Supply Services (SIC 736); Computer and Data Processing (SIC 737); Miscellaneous Business Services (SIC 739); Nursing and Personal Care Facilities (SIC 805); Hospitals (SIC 806); and Colleges and Universities (SIC 822).

We can not be certain if those industries which weathered the 1974-75 recession will do as well or better during the present recession. However, we expect this latest economic downturn will be milder than in 1974-75, so most recession resistant/resilient industries (exclusive of energy-intensive industries) proving at least as strong is probable.

OCCUPATIONS FOR WHICH VOC-TECH. EDUCATION - TRAINING IS AVAILABLE IN MASSACHUSETTS

Administrative Assistant	Glaziers
Advertising Assistants	Grinding Machine Operators
Air Conditioning, Heating & Refrig. Mech.	Grounds Keepers, Gardners
Airplane Mechanics	Household Appliance Mechanics
Animal Technicians	Jewelers
Autobody Repairers	Keypunch Operators
Auto Mechanics	Lathe & Milling Machine Operators
Bakers	Lens Grinders
Bank Tellers	Locksmiths
Barbers	Machinists
Billing Clerks	Meat Cutters & Butchers
Bookbinders	Medical Assistants
Bookkeepers	Nurses' Aides/Orderlies
Bricklayers	Office Machine Repairers
Cabinet Makers	Opticians
Carpenters	Painters, Construction & Maintenance
Cashiers	Painters, Sign
Cement Masons	Paper Hangers
Chemical Laboratory Technicians	Payroll & Time-Keeping Clerks
Clerk-Typists	Photoengravers & Lithographers
Commercial Artists	Photographic Process Workers
Compositors & Typesetters	Plumbers & Pipefitters
Computer Operators	Printing Press Operators
Cooks	Radio & T.V. Repairers
Cosmetologists	Radiologic Technologists
Court Reporters	Respiratory Therapists
Data Processing Machine Repairers	Roofers
Dental Assistants	Secretaries General, Legal, Medical
Dental Hygienists	Sheet Metal Workers
Dental Laboratory Technicians	Stationary Engineers
Drafters	Stenographers
Drill Press Operators	Tile Setters
Electricians	Tool & Die Makers
Electronics Technicians	
Filers, Polishers, and Sanders	
Floor Layers	
Florists	
Food Workers	
Furniture Finishers	

III. Occupational Profile of Recession Resistant/Resilient Industries

Table 3 presents an occupational profile of each of the recession resistant/resilient industries listed on Table 1. It is necessary to keep in mind that this is a mini-profile of selected industries, a more detailed occupational profile is available in other Division of Employment Security publications^{1/}. Also listed are the occupations within these industries for which vocational education is desirable, either in a classroom situation or through on-the-job training.

IV. Labor Demand by Occupation to 1985

A detailed breakout of demand for various occupations is contained in Table 4. Included is a short description of the job duties; the number of openings annually; suggested forms of training; approximate salary; and the labor areas in which demand is greatest. Table 5 provides concise lists of those occupations which will have the greatest annual openings due to growth, and those occupations expected to decline. We wish to point out that those occupations connected with the housing industry, construction workers and real estate agents, do not actually have significant demand at the present time. This is due to the depression in new construction and housing sales caused by the present high interest rates.

V. Labor Supply

Table 6 provides the ratio of active applicants to unfilled job openings in Job Matching Service Offices for selected months from July 1975 to September 1979. This table is not intended, and should not be viewed, as a comprehensive indicator of labor supply. Not all those who are unemployed register themselves with the Employment Service. At least ten percent of the applicants in 1978 were already employed and should these applicants have changed employers their previous job would presumably have opened. While on an individual basis such an applicant might thus find himself in a much better work situation, on a strict relation of labor supply to unfilled jobs there would be virtually no change. It

^{1/} "Employment Requirements by Occupation, by Industry 1976-1985", Occupation/Industry Research Publication, Massachusetts Division of Employment Security, December 1979.

is recognized that not all employers list their job openings with the Division of Employment Security. Nevertheless, the active applicant to job openings ratio of the Employment Service labor exchange serves as a proxy for the labor supply-demand ratio.

Table 6 does illustrate the general economic upswing of the last few years. Also, it can be used in conjunction with Tables 4 and 5, further pinpointing those occupations having the greatest demand.

A listing of occupations for which voc-tech training is available within the state is contained in Table 7. The public schools that are specifically designated vocational-technical are listed on Table 8, which also provides follow-up of the activities of the Class of 1979 upon graduation. Two-thirds of the students went directly to work, while nearly twenty-one percent went on to further education or training. Many private high schools offer some forms of vocational education, as well as most municipal public school systems that do not segregate their voc-tech students from their general or college-prep high school population. Unfortunately, we do not have information concerning what these vocational students do upon graduation. The reader should consult the reports for labor market areas to find the types of training which are available at the local high schools.

The state community college system intends to devote more attention to vocational-technical education in the future. This hopefully will help meet the growing demand for trained technical personnel for the high technology industries. An inventory of the programs of study offered by the various schools during the 1978-1979 academic year is contained in the appendix.

The Bay State Project announced April 15, 1980 is a broad coalition of government, education, business, labor and industry to provide skills training and education to prepare workers needed by growth industries in Massachusetts. Among the objectives of the proposed Bay State Skills Corporation (BSSC) are a complete, accurate, and current supply and demand data base.

Table 1: Recession Resistant, Recession Resilient,
and Post-Recession Growth Industries
Massachusetts

SIC	Industry	1974 Actual Employment	Recession Resistant Change from 1974 to 1975		Recession Resilient Change from 1974 to 1977		Post-Recession Growth Change from 1975 to 1978	
			Numerical	Percent	Numerical	Percent	Numerical	Percent
MANUFACTURING								
222	Weaving Mills-Synthetic	2,695	101	3.8	912	33.8	1,127	40.3
231	Men's and Boy's Suits and Coats	5,140	399	11.0	1,399	38.4	552	13.7
276	Manifold Business Forms	492	13	2.6	94	19.1	90	17.8
283	Drugs	1,542	339	22.0	572	37.1	443	23.6
322	Glass or Glass Ware, Pressed	517	216	41.8	762	147.4	707	96.5
335	Nonferrous Rolling Drawing	4,929	369	7.5	1,261	25.6	3,756	71.7
344	Structural Metal Products	8,770	260	3.0	28	0.3	383	4.2
373	Ship and Boat Building*	4,201	1,874	44.6	2,355	56.1	1,874	30.9
384	Medical Instruments & Supplies	3,681	604	16.4	1,636	44.4	3,141	73.3
396	Costume Jewelry and Notions	3,393	63	1.9	470	13.9	990	28.7
TRANSPORTATION, COMMUNICATIONS, ELECTRIC, GAS, AND SANITARY SERVICES								
415	School Buses	3,735	605	16.2	946	25.3	1,133	26.1
472	Arrangement of Transportation	2,773	60	2.2	508	18.3	672	23.7
483	Radio and Television Broadcasting	3,182	287	9.0	441	13.9	326	9.4
489	Communication Services N.E.C.	496	84	16.9	265	53.4	248	42.8
WHOLESALE AND RETAIL TRADE								
501	Motor Vehicles and Automotive Equip.	8,112	394	4.9	751	9.3	453	5.3
531	Department Stores	50,925	90	0.2	342	0.7	3,009	5.9
541	Grocery Stores	60,918	928	1.5	3,921	6.5	2,272	3.7
543	Fruit and Vegetable Stores	1,133	70	6.2	269	23.7	13	1.1
549	Miscellaneous Food Stores	497	56	11.3	279	56.1	300	54.3
553	Auto and Home Supply Stores	3,217	36	1.1	1,536	47.8	1,946	59.8

Table 1: Recession Resistant, Recession Resilient,
and Post-Recession Growth Industries
Massachusetts
(continued)

SIC	Industry	1974 Actual Employment	Recession Resistant Change from 1974 to 1975		Recession Resilient Change from 1974 to 1977		Post-Recession Growth Change from 1975 to 1978	
			Numerical	Percent	Numerical	Percent	Numerical	Percent
554	Gasoline Service Stations	14,721	6.4	4.2	977	6.6	126	0.8
564	Children's and Infants Wear	395	64	16.2	91	23.0	13	2.8
565	Family Clothing Stores	5,237	650	12.4	1,137	21.7	1,067	18.1
581	Eating and Drinking Places	109,027	749	0.7	13,680	12.6	20,262	18.5
591	Drug Stores and Proprietary	13,717	720	5.3	433	3.2	13	0.1
593	Used Merchandise Stores	960	119	12.4	387	40.3	285	26.4
FINANCE, INSURANCE AND REAL ESTATE								
603	Mutual Savings Banks	10,822	703	6.5	2,923	27.0	87	0.8
612	Savings and Loan Assoc.	548	109	19.9	200	36.5	3,557	541.4
628	Security and Commodity Services	2,400	266	11.1	313	13.0	186	7.0
631	Life Insurance	23,134	1,703	7.4	797	3.5	430	1.7
635	Surety Insurance	44	8	18.2	16	36.4	5	9.6
671	Holding Offices	381	257	67.5	327	85.8	181	28.4
673	Trusts	303	457	150.8	496	163.7	150	19.7
SERVICES								
752	Auto Parking	1,368	44	3.2	61	4.5	127	9.0
753	Auto Repair Shops	8,091	390	4.8	398	4.9	1,536	18.0
801	Offices of Physicians	12,019	954	7.9	2,162	18.0	2,157	16.6
802	Offices of Dentists	8,053	371	4.6	739	9.2	818	9.7
806	Hospitals	96,585	5,673	6.6	9,525	9.9	8,758	8.6
807	Medical and Dental Laboratories	1,886	522	27.7	814	43.2	598	24.8
811	Legal Services	10,175	294	2.9	765	7.5	1,300	12.4
822	College Universities	50,637	3,393	6.7	7,545	14.9	9,553	17.7
823	Libraries and Information	286	16	5.6	43	15.0	29	9.6

* Employment levels effected by LNG tanker contracts and defense spending

Table 2
 Growth in Employment
 By Industry 1975-1978
Industries Which Grew by 2,500 Workers

SIC CODE	INDUSTRY GROUP
307	Miscellaneous Plastic Products
335	Nonferrous Rolling Drawing
357	Office, Computing and Accounting Machines
362	Electrical Industrial Apparatus
363	Household Appliances
367	Electronic Components and Accessories
382	Measuring and Controlling Instruments
384	Medical Instruments and Supplies
386	Photographic Equipment and Supplies
531	Department Stores
581	Eating and Drinking Places
594	Miscellaneous Shopping Goods
612	Savings and Loan Associations
701	Hotels, Motels, and Tourist Courts
736	Personnel Supply Services
737	Computer and Data Processing Service
739	Miscellaneous Business Services
805	Nursing and Personal Care Facilities
806	Hospitals
822	Colleges, Universities
832	Individual and Family Social Services
839	Social Services Not Elsewhere Classified
891	Engineering, Architectural and Surveying Serv.

Table 2
Growth in Employment by Industry 1975-1978
Industries Which Grew by 1,000 to 2,500 Workers

SIC CODE	INDUSTRY GROUP
209	Misc. Food and Kindred Products
222	Woven Fabric Mills-Synthetic
264	Misc. Converted Paper Products
275	Commercial Printing
329	Misc. Nonmetallic Mineral Products
342	Cutlery, Hand Tools, and Hardware
349	Misc. Fabricated Metal Products
354	Metalworking Machinery
355	Special Industrial Machinery
356	General Industrial Machinery
359	Misc. Machinery, Except Electrical
364	Electric Lighting & Wiring Equipment
369	Misc. Electrical Equip. & Supply
371	Motor Vehicles and Equipment
372	Aircraft and Parts
373	Ship and Boat Building
376	Guided Missles and Space Vehicles
383	Optical Instruments & Lenses
391	Jewelry, Silverware, and Plated Ware
415	School Buses
421	Trucking
508	Machinery, Equipment, and Supplies
541	Grocery Stores

Table 2 (continued)
 Growth in Employment by Industry 1975-1978
Industries Which Grew by 1,000 to 2,500 Workers

SIC CODE	INDUSTRY GROUP
551	New and Used Car Dealers
553	Auto and Home Supply Stores
562	Womens' Ready-to-Wear Stores
565	Family Clothing Stores
599	Retail Stores, Not Elsewhere Classified
633	Fire, Marine, and Casualty Insurance
641	Insurance Agents, Brokers
653	Real Estate Agents and Managers
734	Services to Buildings
762	Electrical Repair Shops
801	Offices of Physicians
808	Outpatient Care Facilities
811	Legal Services
833	Job Training and Vocational Rehabilitation
835	Child Day Care Services
892	Nonprofit Educational Organization
893	Accounting, Auditing, Bookkeeping

Table 3: Occupational Profile of Selected Industries in Massachusetts

SIC	Industry	Occupational Group Profile	Percent of Employment	Occupation for Which Vocational Education is Desirable
222	Weaving Mills-Synthetic	Managers & Officers	4.66	Supervisor, Nonworking
		Professional Occupations	2.78	Loom Fixer
		Technical Occupations	1.55	Inspector
		Service Occupations	1.34	Card Tender
				Production Packager
		Maintenance and Production	75.81	Sewing Machine Oper.
		Clerical Occupations	11.52	Weaver
				Semi-Skilled Worker
		Sales Occupations	1.84	General Office Clerk
				Shipping Packer
231	Mens' & Boys' Suits & Coats	Managers & Officers	3.26	Supervisor, Nonworking
		Professional Occupations	1.53	Repairer & Setter
		Service Occupations	1.55	Production Packager
				Card Tender
				Frame Spinner
		Maintenance and Production	79.15	Semi-Skilled Workers
				General Clerk
				Clerical Worker
		Clerical Occupations	12.05	Sales Representative
		Sales Occupations	1.95	
276	Manifold Business Forms	Managers & Officers	8.96	Offset Lithographic
		Professional Occupation	2.65	Press Operator
		Technical Occupations	0.41	Letter Press Operator
		Service Occupations	1.32	Press Asst. Operator
		Maintenance & Production	66.40	Bindery Worker
		Clerical Occupations	16.00	Bookkeeper
				General Clerk
				Secretary
		Sales Occupations	4.23	Typist
				Shipping and Receiving Clerk
283	Drugs	Managers & Officers	6.56	Supervisor, Maint. & Production
		Professional Occupations	9.45	Maintenance Mechanic
		Technical Occupations	3.45	Truck Driver
		Service Occupations	2.25	Industrial Truck Oper.
				Maintenance Repairer
		Maintenance & Production	57.60	Production Packager
		Clerical Occupations	15.14	Semi-Skilled Operative
				Accounting Clerk
				General Clerk
		Sales Occupations	2.56	Secretary, Shipping Packer
335	Nonferrous Rolling Drawing	Managers & Officers	6.90	Supervisor, Nonworking
		Professional Occupations	5.64	Maintenance Mechanic
		Technical Occupations	2.51	Truck Driver
		Service Occupations	1.46	Industrial Truck Operator
				Inspector
		Maintenance & Production	65.52	Abrasive Grinder,
		Clerical Occupations	16.82	Press Operator
				Semi-Skilled Worker
		Sales Occupations	1.15	General Clerk
				Clerical Worker

Table 3: Occupational Profile of Selected Industries in Massachusetts
(continued)

SIC	Industry	Occupational Group Profile	Percent of Employment	Occupation For Which Vocational Education is Desirable
344	Structural Metal Prods.	Managers & Officers	7.37	Supervisor, Nonworking
		Professional Occupations	3.32	Filer/Grinder/Buffer
		Technical Occupations	2.35	Polisher
		Service Occupations	1.68	Inspector, Machinist
		Maintenance & Prod.	66.67	Lathe Operator
		Clerical Occupations	11.95	Punch Press Operator
		Sales Occupations	3.57	Welder, Semiskilled Worker
373	Ship and Boat Building	Managers & Officers	5.19	Secretary, General Clerk
		Professional Occupations	1.74	Sales Representative
		Technical Occupations	0.35	Carpenter
		Service Occupations	2.77	Supervisor, Maintenance & Production
		Maintenance & Production	30.25	Machinist, Ship Rigger
		Clerical Occupations	3.33	Assembler
		Sales Occupations	1.39	Welder/Framemitter
				Ship Fitter
384	Medical Instrument & Supplies	Managers & Officers	7.65	Paint Production
		Professional Occupations	15.53	Semi-Skilled Operator
		Technical Occupations	9.72	Plumber/Pipefitter
		Service Occupations	1.35	General Clerk
		Maintenance & Production	49.41	Secretary
		Clerical Occupations	14.74	Typist
		Sales Occupation	1.10	Production Clerk
396	Costume Jewelry & Notions	Managers & Officers	7.13	Sales Representative
		Professional Occupations	2.59	Supervisor, Maintenance & Production
		Technical	0.86	Inspector, Machinist
		Service Occupations	1.43	Production Packager
		Maintenance & Production	70.97	Assembler
		Clerical Occupations	13.49	Punch Press Operator, Skilled worker,
		Sales Occupations	3.45	Semi-skilled Operative
415	School Buses	Managers & Officers	3.32	General Clerk, Secretary
		Professional & Technical	1.59	Production Clerk
		Maintenance & Production	91.08	Shipping Packer
		Clerical Occupations	3.50	
472	Arrangement of Transportation	Managers & Officers	11.98	Bus Driver, Automotive Mechanic
		Professional Occupations	2.34	Maintenance and Production Worker
		Service Occupations	2.86	General Clerk, Dispatcher
		Maintenance & Production	15.63	
		Clerical Occupations	61.98	Truck Drivers
		Sales Occupations	5.21	Maintenance and Production Occup.

Table 3: Occupational Profile of Selected Industries in Massachusetts
(continued)

SIC	Industry	Occupational Group Profile	Percent of Employment	Occupation For Which Vocational Education is Desirable
483	Radio & Television and	Managers & Officers	12.04	Secretary, General Clerk
489	Communication Serv. NEC	Professional Occupations	42.30	Traffic Clerk, Clerical Worker
		Technical Occupations	16.38	Salesperson
		Service Occupations	1.33	
		Maintenance Production	1.00	
		Clerical Occupations	16.72	
		Sales Occupation	9.69	
501	Motor Vehicles & Automotive Equip.	Nonpublished Data		
531	Department Stores	Managers & Officers	7.36	Store Detective
		Professional Occupations	2.53	Stock Clerk, Accounting Clerk
		Technical Occupations	0.66	Cashier, General Clerk
		Service Occupations	7.03	Storeroom Clerk, Marking Clerk
		Maintenance & Production	13.47	Clerical Worker
				Sales Representative
		Clerical Occupations	28.33	Sales Clerk
		Sales Occupations	40.02	
541	Grocery Stores	Managers and Officers	6.67	Stock Clerk
		Professional Occupations	1.00	Semi-skilled Worker
		Technical Occupations	0.04	Cashier
		Service Occupations	9.18	Clerical Worker
		Maintenance & Production	34.17	Sales Clerk
		Clerical Occupations	39.49	
		Sales Occupations	9.42	
543	Fruit & Vegetable Store	Nonpublished Data		
549	Misc. Food Stores	" "		
553	Auto & Home Supply	" "		
554	Gasoline Service Stations	" "		
564	Childrens' & Infant's Wear and	Managers & Officers	7.52	Store Manager, Stock Clerk, Bookkeeper
565	Family Clothing Stores	Professional Occupations	3.67	Cashier
		Services Occupations	1.33	General Clerk
		Maintenance & Production	31.60	Shipping and Receiving Clerk
		Clerical Occupations	17.55	Stock Clerk
		Sales Occupations	38.29	Sales Representative
				Sales Clerk
581	Eating and Drinking Places	Managers & Officers	6.24	Restaurant Manager
		Professional Occupations	0.93	Bartender, Hostess/Host
		Technical Occupations	0.07	Kitchen Helper
		Service Occupations	86.87	Waiter/Waitress
		Maintenance & Production	0.08	Short Order Cook, Food Preparer
		Clerical Occupations	5.04	Cook, Bookkeeper
		Sales Occupations	0.09	Cashier
591	Drug Stores & Proprietary	Nonpublished data		
593	Used Merchandis Stores	" "		

Table 3: Occupational Profile of Selected Industries in Massachusetts
(continued)

SIC	Industry	Occupational Group Profile	Percent of Employment	Occupation For Which Vocational Education is Desirable
603	Mutual Savings Bank	Managers & Officers	17.52	Clerical Supervisor
		Professional Occupations	3.57	Accounting Clerk
		Technical Occupations	0.09	Bookkeeper
		Service Occupations	2.79	General Clerk
		Maintenance & Production	0.35	New Account. Teller
		Clerical Occupations	75.50	Secretary
		Sales Occupations	0.17	Switchboard Operator Teller, Typist
612	Savings & Loan Assoc.	Managers & Officers	22.30	Service Worker
		Professional Occupations	2.64	Bookkeeper
		Service Occupations	4.08	Accounting Clerk
		Maintenance & Production	0.48	General Clerk
		Clerical Occupations	70.50	New Account Teller Secretary, Teller Clerical Worker
628	Security & Commodity Services	Managers & Officers	11.45	Computer Operator
		Professional Occupations	25.55	Key punch Operator
		Technical Occupations	1.32	Stenographer
		Service Occupations	1.76	Accounting Clerk
		Clerical Occupations	58.59	File Clerk
		Sales Occupations	1.32	General Clerk
				Secretary Typist Bookkeeper
631	Life Insurance	Managers & Officers	8.46	Accounting Clerk
		Professional Occupations	12.58	Claims Clerk
		Technical Occupations	2.99	File Clerk
		Service Occupations	1.83	General Clerk
		Maintenance & Production	1.23	Secretary
		Clerical Occupations	61.12	Typist
		Sales	11.74	Clerical Occupations Salesperson
635	Surety Insurance	Nonpublished Data		
671	Holding Offices	Managers & Officers	17.27	Accounting Clerk
673	Trusts	Professional Occupations	27.34	Bookkeeper
		Service Occupations	2.16	General Clerk, Secretary
		Clerical Occupations	48.92	Typist
		Sales Occupations	4.32	
752	Auto Parking	Nonpublished Data		
753	Auto Repair Shops	Managers & Officers	14.73	Supervisor, Nonworking
		Professional Occupations	1.18	Auto Mechanic
		Technical Occupations	0.07	Body Repairer
		Service Occupations	0.65	Vehicle Cleaner
		Maintenance & Production	67.41	Auto Painter
		Clerical Occupations	14.59	Fuel Pump Attendant
		Sales	1.31	Bookkeeper Accounting Clerk Cashier, General Clerk

Table 3: Occupational Profile of Selected Industries in Massachusetts
(continued)

SIC	Industry	Occupational Group Profile	Percent of Employment	Occupation for Which Vocational Education is Desirable
801	Offices of Physicians	Managers & Officers	5.02	Medical Assistant Bookkeeper
802	Offices of Dentists	Professional Occupations	22.73	General Clerk Receptionist Secretary
		Technical Occupations	14.86	
		Service Occupations	39.08	
		Maintenance Production	3.97	
		Clerical Occupations	14.28	
806	Hospitals	Nonpublished Data		
807	Medical & Dental Labs.	" "		
811	Legal Services	Managers & Officers	5.01	Machine Operator Typist
		Professional Occupations	35.06	Accounting Clerk Bookkeeper
		Service Occupation	0.25	General Clerk Receptionist Secretary
		Clerical Occupations	59.68	Messenger Switchboard Operator/ Receptionist
822	College Universities			
832	Libraries & Information			

Table 4
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable
	Average Annual	Job Openings Due to Growth	Due to Separation					
Administrative Assistants - (Clerical Supervisor) Job duties include the coordination of office tasks and the supervision of clerical workers	380	130	250	Career or Technical School, Associate Degree, or Bachelor's Degree	Executive Secretarial or Administrative Assisting	\$9,300 - 11,500/year	Moderate Demand	Boston SMSA
Advertising Assistants - (Advertising Agents) Assists in the planning and executing advertising programs to promote the sale of a company's products or services	160	60	100	Career or Technical School, Associate Degree, or Bachelor's Degree	Advertising or Public Relations	\$6,900 - 8,500/year	Moderate Demand	
Air Conditioning, Heating, & Refrigeration Mechanics - Install, repair, and maintain industrial, commercial, and home refrigeration, cooling, and heating systems.	440	300	140	OJT, Apprenticeship Training, or Career or Technical School	Air Conditioning-Refrigeration/Heating	\$8.50 - 11.50/hour	Great Demand	
Aircraft Mechanics - Service and repair aircrafts and engines to keep them in proper maintenance.	50	30	20	OJT, Associate Degree, or Career or Technical School (FAA Certification)	Aircraft Mechanic	\$15,000 - 20,000/year	Stable Demand	Boston SMSA Springfield
Animal Technicians - (Health Technicians) Responsible for the care and treatment of animals.	190	60	130	Career or Technical School, Associate Degree or OJT	Animal Science	\$7,300 - 10,200/year	Moderate Demand	
Autobody Repairers - Repair cars damaged by accidents or rust.	120	40	80	OJT, or Vocational Technical Diploma	Auto Body Repair	\$6.00 - 8.25/hour	Moderate Demand	Boston SMSA Fitchburg
Auto Mechanics - Repair cars, small trucks, and buses to keep them in good running condition.	800	260	540	OJT, Vocational Technical Diploma or Career or Technical School	Auto Mechanics or Automotive Technology	\$6.00 - 7.75/hour	Great Demand	Boston SMSA Fitchburg Lawrence-Hav. New Bedford
Bakers - Prepare bake foods according to recipes to produce bread, cakes and pastries.	170	-10	180	OJT, Vocational Technical Diploma or Career or Technical School	Baking	\$9,000 - 13,500/year	Moderate Demand	Boston SMSA
Bank Tellers - Responsible for taking deposits, making withdrawals, and cashing checks.	460	90	370	OJT, High School Diploma, Career or Technical, or Associate Degree	Banking Accounting Technologies	\$8,700 +/year	Great Demand	Boston SMSA Springfield New Bedford Fall River

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/			Suggested Education, or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable
	Average Annual	Job Openings Due to Growth	Due to Separation					
<u>Barbers</u> - Cut and style hair. They may also give shampoos, dye and tint hair, and trim or shape moustaches and beards.	210	-10	220	Career or Technical School, or Apprenticeship Training (State License)	Barbering	\$17.5 - 300 per week	Stable Demand	
<u>Bartenders</u> - Prepare all kinds of alcoholic and nonalcoholic drinks for customers in restaurants, lounges, and private function halls.	580	150	430	OJT, or Career and Technical School	Bartending	\$3.50 +/hr. + tips	Stable Demand	Boston SMSA Fall River Pittsfield
<u>Billing Clerks</u> - Prepare invoices (bills) to be sent to customers for goods or services purchased.	470	240	230	High School Diploma, Associate Degree, or Career and Technical School	Accounting, Computing, or Accounting Clerk	\$8,300 - 11,700/year	Great Demand	Boston SMSA Fitchburg Fall River
<u>Bookbinders</u> - Perform the duties of covering books, pamphlets, magazines, and other bound printed material.	60	0	60	OJT, Apprenticeship Training, or Career Technical School	Graphic Arts or Printing	\$6.30 +/per hour	Stable Demand	
<u>Bookkeepers</u> - Record the financial transactions of a business.	2,950	490	2,460	Career or Technical School, Associate Degree, or Bachelor Degree	Accounting or Bookkeeping	\$7,500 - 9,800/year	Great Demand	All Areas
<u>Bricklayers</u> (Brick and Stonemasons and Apprentices)- Uses masonry materials to build walls, fireplaces, chimneys, arches, piers, and other structures	140	60	80	OJT, Vocational Technical Diploma, or Apprenticeship Training	Masonry	\$9.90 - per hour	Moderate Demand	Boston SMSA
<u>Bus Drivers</u> - Transport passengers over city and suburban streets to get them to their destination	340	-50	390	OJT, (Class 1 Driver's License)	Transportation	\$4.50- 5.00/hour	Moderate Demand	Boston SMSA
<u>Cabinet Makers</u> - Craftspeople who make and install wood furnishings such as cabinets, counters, closets, etc.	40	-20	60	Vocational Technical Diploma, Career or Technical School, or Apprenticeship Training	Cabinet Making	\$5.00 - 10.50/hour	Stable Demand	Boston SMSA
<u>Carpenters</u> - (Carpenters & Apprentices) Use hand and power tools to build or repair wooden structures.	1,380	560	820	OJT, Career or Technical School or Apprenticeship Training	Carpentry	\$5.50 - 8.47/hour	Great Demand	Boston SMSA New Bedford Fall River
<u>Cashiers</u> - Use cash registers to ring up customer's orders, take the payment and give the right amount of change. At the end of their shift, they are responsible for a tally of their sales and to fill out tally sheets.	2,490	1,050	1,440	High School Diploma or Vocational Technical Diploma	Cashiering	\$3.25 - 5.10/hour	Great Demand	Boston SMSA Fall River Pittsfield Brockton

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/ 1976-1985			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable
	Average Annual	Due to Growth	Due to Separation					
Cement Masons-(Cement and Concrete Finishers) Use concrete and cement to build structures such as foundations, sidewalks, and bridge supports.	60	50	10	OJT and Apprentice- ship Training	Masonry or Concrete Technology	\$7.00 - 9.00/hour	Stable Demand	
Chemical Laboratory Technicians - (Chemical Technicians) Perform various tasks used in analyses or manufacture of chemical products	70	20	50	Associate or Bachelor's Degree	Chemistry	\$4.35 - 7.55/hour	Stable Demand	Springfield
Child Care Workers - Supervise and tend pre- school children, usually while the parents are working.	820	460	360	Associate or Bachelor's Degree	Pre-Elem. Education	\$8,700/year	Great Demand	Boston SMSA
Clerk-Typists - Type letters, forms, and other matter used in the course of business.	1,890	460	1,430	High School Diploma or Career or Technical School	Clerical Typing	\$160 - 170 per week	Great Demand	All Areas
Compositors and Typesetters - Determine type size, style, and compositional pattern of articles to be printed in newspapers, magazines, or other matter.	100	-100	200	OJT, Vocational Technical Diploma or Technical School	Graphic Arts or Printing	\$4.00 - 8.50/hour	Stable Demand	Boston SMSA Fitchburg
Computer Operators - (Computer, Peripheral Equipment) Monitor and control computers to process business, scientific, engineering articles or other data according to operating instruction.	230	110	120	High School Diploma or Career/Technical School	Data Processing	\$8,900 - 13,000/year	Moderate Demand	Boston SMSA Fitchburg New Bedford Pittsfield
Construction Workers - Perform various tasks under the supervision of contractors in the construction of buildings and highways.	610	320	290	OJT or Vocational Technical School	Construction Trade	\$3.80 - 4.50/hour	Great Demand	Boston SMSA
Cooks - Prepare meals, usually in restaurants, hotels, and other institutions.	1,760	670	1,090	Associate Degree, or Vocational Technical School	Culinary Arts	\$4.15 - 6.00/hour	Great Demand	Fall River Boston SMSA Fitchburg New Bedford Brockton
Cosmetologists - Style people's hair, may also give manicures, do facials, or change color of customer's hair.	520	-20	540	Vocational Technical School or Career/ Technical School (State License)	Cosmetology	50% of the cost of hair style and tips	Moderate Demand	Boston SMSA
Data Processing Machine Repairers (Computer Service Technicians) Inspect, adjust, and clean computers and other electronic machines using special testing equipment and tools.	180	170	10	Career/Technical Schools or Associate Degree	Electronics and Machine Technology	\$205 - 290/week	Moderate Demand	Boston SMSA

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable
	Average Annual	Due to Growth	Due to Separation					
<u>Dental Assistants</u> - Help Dentists during the examination and treatment of patients.	390	200	190	Associate Degree (Certification)	Dental Assisting	\$9,100 - 10,400/year	Great Demand	Boston SMSA Fitchburg New Bedford
<u>Dental Hygienists</u> - Licensed to clean teeth and instruct patients in dental care.	280	180	100	Associate Degree (Certification)	Dental Hygiene Technology	\$10,000 - 13,000/year	Great Demand	Boston SMSA Fitchburg New Bedford
<u>Drafters</u> - Convert the rough drawings of architects and engineers into finished plans so that craftspeople can use them to produce things such as engines, machinery, and buildings.	600	360	240	Vocational Technical Diploma Career/Technical School, or Associate Degree	Drafting, Architectural Technical, or Design Technology	\$10,000 - 15,000/year	Great Demand	Boston SMSA Springfield Worcester Lawrence-Hav. Fitchburg New Bedford Fall River
<u>Drill Press Operators</u> - Run machines that bore holes into metal according to a set of plans and blueprints.	60	-10	70	OJT, or Vocational Technical Diploma	Machine Tools or Machine Shop	\$8,800 - 15,000/year	Stable Demand	Springfield Worcester Lawrence-Hav.
<u>Electricians</u> - (Electricians and Apprentices) lay out, assemble, install, and test electrical fixtures and wiring systems	640	300	340	Vocational Technical Diploma, Career/Technical School or Apprenticeship Training (State License)	Electrical Wiring	\$15,100 - 19,700/year	Great Demand	Boston SMSA Lawrence-Hav. New Bedford
<u>Electronics Technicians</u> - Apply electronic theory and principles of electric circuits, electrical testing procedures, and electrical subject matter.	680	570	110	Vocational Technical Diploma, Career/Technical School or Associate Degree	Electronics or Electronic Technician	\$9,300 - 16,000/year	Great Demand	Boston SMSA Springfield Worcester Fitchburg Lawrence-Hav. Pittsfield New Bedford Fall River
<u>File Clerks</u> - Care for all materials to be filed or already filed, such as printed documents, letters, reports and receipts	470	110	360	High School Diploma or Career/Technical School	Clerical or Business Courses	\$6,400 - 8,700/year	Great Demand	Boston SMSA Fitchburg Fall River Pittsfield
<u>Filer, Polisher, Sander, Buffer</u> Work in factories and processing plants using power tools to smooth and finish metal parts.	180	20	160	OJT, or Vocational Technical Diploma	Machine Tools or Machine Shop	\$113 - 128/week	Moderate Demand	Springfield Worcester Lawrence-Hav. Fall River

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/ 1976-1985			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable 6/
	Average Annual	Due to Growth	Due to Separation					
Floor Layers - Workers who lay smooth, decorative floor such as tile, wood flooring or linoleum..	20	10	10	OJT, Vocational Technical Diploma or Apprenticeship Training	Carpet or Floor Laying	\$5.40-9.00/hour	Stable Demand	
Food Workers - Sell prepared food to customers. 1,030 They take orders, prepare drinks, set up silverware, and may also have to operate a cash register.	1,030	350	680	OJT or Vocational Technical School	Food Service	\$3.70 +/hr.	Great Demand	Boston SMSA Fitchburg Fall River Pittsfield
Furniture and Wood Finishers - Repair and refinish antique, damaged, or worn furniture.	30	-10	40	OJT, Vocational Technical Diploma or Career/Technical School	Furniture Refinishing	\$4.25 - 6.00/hour	Stable Demand	
Garage and Gas Station Attendants - They fill cars or trucks with gasoline, check oil and coolant levels, clean windshields, check tires and batteries, and may also do minor repair work.	200	30	170	OJT or Vocational Technical Diploma	Service Station Technology or Auto Mechanics	\$2.90 - 4.00/hour	Moderate Demand	Boston SMSA
Glaziers - Install windows, glass panels or mirrors using a variety of hand or power tools.	60	30	30	OJT, Vocational Technical Diploma, or Apprenticeship Training	Glazing	\$4.55 - 6.25/hour	Stable Demand	
Grinding Machine Operators - Work in factories and processing plants using power grinders to smooth and shape metal parts.	140	-10	150	OJT or Vocational Technical Diplomas	Machine Tools or Machine Shop	\$5.00 - 7.00/hour	Moderate Demand	Springfield Worcester Lawrence-Hav. New Bedford Fall River
Guards - Protect property from damage or loss from fire, and theft, may also help to control and maintain large crowds.	1,480	240	1,240	OJT or Career/Technical School	Security or Loss Prevention	\$3.40 - 4.10/hour	Great Demand	Boston SMSA
Household Appliance Mechanics - Maintain and fix electrical or gas appliances such as refrigerators, clothes dryers, and washing machines.	130	40	90	OJT or Career/Technical School	Appliance Repair	\$4.00 - 7.00/hour	Moderate Demand	Boston SMSA Fitchburg
Keypunch, Data Entry Operators - Use a machine with a keyboard much like an electric typewriter, pressing proper keys in correct order to punch data into cards.	220	-40	260	Vocational Technical Diploma or Career/Technical School	Key Punch Operator	\$6.750 - 11,000/year	Moderate Demand	New Bedford

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where 6/ Vocational Education is Desirable
	Average Annual	Due to Growth	Due to Separation					
Lathe and Milling Machine Operator - Work in machine shop or metalworking factories operating machines that turn, shape, and cut metal parts.	190	90	100	OJT or Vocational Technical Diploma	Lathe and Milling Machine	\$12,000 - 20,000/year	Moderate Demand	Springfield Worcester Lawrence-Hav. Fall River
	200	120	80					
Lens Grinder and Polisher - Use various machines to make and polish eyeglasses or contact lenses.	760	190	570	Vocational Technical Diploma or Apprenticeship Training	Machine Shop	\$10,000 - 15,000/year	Great Demand	Boston SMSA Springfield Worcester Fitchburg Lawrence-Hav. Fall River New Bedford
Nurses Aides and Orderlies - Provide basic patient care under direct supervision. May bathe, feed and transport patients and make beds.	1,930	730	1,200	OJT, Vocational Technical Diploma or Career/Technical School	Nursing Aid	\$3.00 - 3.25/hour	Great Demand	Boston SMSA Fitchburg Lawrence-Hav. New Bedford Fall River Brockton
Office Machine Repairers - Are skilled workers who inspect, adjust and repair office machines such as typewriters and copiers	100	80	20	Vocational Technical Diploma or Career/Technical School	Business Machine Repair	\$211.00 - 310/week	Moderate Demand	Boston SMSA Springfield
Painters and Apprentices - (Construction Crafts Workers) Use paint and brushes to create advertising or commercial signs. Other workers may apply paints and protective coatings to all kinds of structures.	770	270	500	OJT, Career/Technical School, or Apprenticeship Training	Building Construction or Painting/Decorating	\$4.75 - 7.50/hour	Great Demand	Boston SMSA Fitchburg
Paperhangers - Prepare interior wall surfaces, cut wall paper according to patterns, and put the paper onto the walls of homes and businesses.	70	30	40	OJT or Vocational Technical Diploma	Building Construction or Painting/Decorating	\$6.00 - 9.50/hour	Stable Demand	
Payroll and Timekeeping Clerks - Calculate for specific pay periods how much money to pay each employee according to a pay schedule.	410	90	320	Associate Degree or Career/Technical School	Accounting or Bookkeeping	\$8,100 - 11,700/year	Great Demand	Boston SMSA Springfield

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where Vocational Education is Desirable 6/
	Average Annual	Due to Growth	Due to Separation					
Photoengravers and Lithographers - Prepare metal plates for letterpress or gravure printing, using photographic and acid etching methods.	80	30	50	Career/Technical School or Associate Degree	Photographic Technology	\$4.80 +/hour	Stable Demand	Boston SMSA Fitchburg
Photographic Process Workers - Work in commercial processing laboratories, mixing chemicals, unloading film cartridges, and running processors and photo enlargers.	250	140	110	Career/Technical School or Associate Degree	Photographic Technology	\$3.50 - 5.10/hour	Moderate Demand	Boston SMSA New Bedford
Plumbers and Pipefitters - Install, repair, and maintain piping systems used to carry water, steam, and gases.	730	360	370	Vocational Technical Diploma or Apprenticeship Training	Plumbing	\$4.75 - 8.20/hour	Great Demand	Boston SMSA Fitchburg New Bedford
Printing Press Operators - Work for newspaper, magazine, publishers, or printing companies operating one or more of the many types of printing presses.	180	20	160	OJT, Vocational Technical Diploma or Apprenticeship Training	Graphic Arts	\$7.00 - 8.00/hour	Moderate Demand	Boston SMSA Fitchburg
Radio and Television Repairers - Work on radios, T.V.'s, C.B. sets, and stereos to keep them in running condition.	210	120	90	Vocational Technical Diploma or Career/Technical School (State License)	Radio/T.V. Repair	\$4.00 - 10.00/hour	Moderate Demand	
Radiologic Technologists and Technicians - Operate the X-Ray equipment used in hospitals and clinics.	210	110	100	Associate Degree or Bachelor's Degree	Radiologic Technology	\$10,400 - 14,000/year	Moderate Demand	Boston SMSA Fitchburg New Bedford Fall River Pittsfield
Real Estate Agents & Brokers - People who represent home owners and landlords in the buying, selling and renting of buildings and land.	1,090	330	760	Associate Degree Bachelor's Degree, or Career/Technical School (State License)	Real Estate	Commission Average \$10,300 - 20,000/year	Great Demand	Fitchburg
Roofers Slaters - Install or repair roofs of homes and other buildings. They may use slate tiles, shingles, asphalt or other materials.	140	90	50	OJT, or Apprenticeship Training	Building Construction	\$5.00 - 7.05/hour	Moderate Demand	Boston SMSA
Sales Clerks - Help customers select merchandise, write up sales receipts and operate cash registers.	7,980	2,200	5,780	OJT, High School Diploma, or Vocational Technical	Distributive Education	\$7,000 - 10,000/year	Great Demand	Boston SMSA Lawrence-Hav. Fall River Pittsfield

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/ 1976-1985			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where 6/ Vocational Education is Desirable
	Average Annual	Due to Growth	Due to Separation					
<u>Secretaries, General</u> - Take dictation, type letters, file records, plan appointments, and perform other clerical tasks.	7,830	3,410	4,420	High School Diploma or Career/Technical School	Secretarial Technology	\$7,900 - 13,300/year	Great Demand	All Areas
<u>Secretaries, Legal</u> - Perform clerical and secretarial work for attorneys or law firm.	460	230	230	Career/Tech. School or Associate Degree	Legal Secretarial	\$9,500 - 15,700/year	Great Demand	Boston SMSA Lawrence-Hav.
<u>Secretaries, Medical</u> - Work for doctors or hospitals, scheduling appointments and preparing medical charts and reports.	740	450	290	Career/Technical School or Associate Degree	Medical Secretarial	\$9,100 - 12,000/year	Great Demand	Boston SMSA Fitchburg Lawrence-Hav. Pittsfield
<u>Sheet Metal Workers</u> - Work from blueprints and drawings to make and install articles of sheet metal.	160	60	100	OJT, Vocational Technical Diploma or Apprenticeship Training	Sheet Metal or Metalwork Technology	\$4,40 - 5,50/hour	Moderate Demand	Boston SMSA Springfield Worcester Lawrence-Hav. New Bedford Fall River
<u>Stationary Engineers</u> - Operate and maintain equipment in industrial plants and other buildings that are essential to power generation.	150	-30	180	OJT, Career Technical School, or Apprenticeship Training	Steam Engineering	\$6.50 +/hour	Moderate Demand	Springfield Fitchburg New Bedford
<u>Stenographers</u> - Take dictation or correspondence, reports, and other material, usually in shorthand. Transcribe dictated material into final form with a typewriter.	20	-60	80	Vocational Technical Diploma or Career/Technical School	Stenography	\$150 - 185/week	Stable Demand	Boston SMSA Fall River
<u>Tile Setters</u> - Install ceramic tiles, stone and other material on walls, floors, and ceilings.	40	20	20	OJT, Vocational Technical School, or Apprenticeship Training	Floor Laying	\$6.45/hour	Stable Demand	Boston SMSA
<u>Tool & Die Makers</u> - Workers who make the tools and dies used in shaping and forming metal products.	340	100	240	OJT, Voc. Tech School or Apprenticeship Training	Machine	\$6.50 - 10.00/hour	Moderate Demand	Springfield Worcester Fitchburg Lawrence-Hav. Fall River
<u>Typists</u> - Do a variety of typing jobs and clerical tasks such as filing memos, answering phone calls, and operating calculating machines.	1,890	460	1,430	High School Diploma or Career/Technical	Typing	\$7,970 - 11,400/year	Great Demand	All Areas

Table 4 (continued)
Vocational/Technical Occupations in Massachusetts

Occupational Description 1/	Annual Labor Demand 2/ 1976-1985			Suggested Education or Training 3/	Program of Study	Approximate Salary 4/	Employment Outlook 5/	Area Where 6/ Vocational Education is Desirable
	Average Annual Growth	Due to Job Openings	Due to Separation					
<u>Upholsterers</u> - Prepare furniture frames with springs, webbing, and other foundation materials. They also finish the furniture with leather, plastic, or other covering material.	60	-10	70	OJT, or Vocational Technical School	Upholstery	\$5.65 - 8.25/hour	Stable Demand	
<u>Waiters and Waitresses</u> - Serve food and beverages to customers.	2,170	760	1,410	OJT, or Vocational Technical School	Food Service	\$3.15 +/hour + tips	Great Demand	Boston SMSA Pittsfield Brockton
<u>Welders</u> - Workers concerned with joining, surfacing, fabricating or repairing structures or parts of metal or other weldable material	440	190	250	OJT, or Vocational Technical School	Welding	\$5.31 - 7.00/hour	Great Demand	Boston SMSA Springfield Worcester Fitchburg Lawrence-Hav. New Bedford Fall River

1/ The Boston Globe, "Career and Education Planning Guide", October 21, 1979.

2/ "Employment Requirements by Occupation, by Industry 1976-1985", Occupation/Industry Research Publication, Massachusetts Division of Employment Security, December 1979.

3/ Definitions: On-the-Job Training (OJT) - Training offered by employer, usually under six months

High School Diploma - Graduate from Secondary School

Vocational Technical School - Secondary School with concentration in a comprehensive program

Career or Technical School - Post Secondary School with concentration in specific program of study, usually under two years

Associate Degree - Junior and Community Colleges with specific program of study, usually two years

Bachelor's Degree - Four Year College

Apprenticeship Training - Training established by employer with classroom study, usually four years

4/ Job Matching Service, Division of Employment Security

5/ Total Annual Job Openings = 0-149 - Stable Demand 150-399 Moderate Demand 400+ Great Demand

6/ Vocational Education Planning and Workforce Information Report for Boston SMSA.. Similar Report for Brockton SMSA, Fall River LMA, Fitchburg-Leominster SMSA, Lawrence-Haverhill SMSA, New Bedford LMA, Pittsfield LMA, Springfield-Chicopee-Holyoke, LMA.

Table 5 Annual Labor Demand
Massachusetts 1976 - 1985, Openings Due to Growth
(Occupations Whose Annual Openings Due to Growth Will Exceed 200)

Rank	Occupation	Number of Openings
1.	Secretaries (General).....	3,410
2.	Sales Clerks	2,200
3.	Cashiers.....	1,050
4.	Waiters and Waitresses.....	760
5.	Nurses Aides.....	730
6.	Cooks.....	670
7.	Electronics Technicians.....	570
8.	Carpenters.....	560
9.	Bookkeepers.....	490
10.	Child Care Workers.....	460
11.	Clerk-Typists.....	460
12.	Typists.....	460
13.	Secretaries (Medical).....	450
14.	Drafters.....	360
15.	Plumbers and Pipefitters.....	360
16.	Food Workers.....	350
17.	Real Estate Agents & Brokers.....	330
18.	Construction Workers.....	320
19.	Air Conditioning, Heating, and Refrigeration Mechanics.....	300
20.	Electricians.....	300
21.	Painters and Apprentices.....	270
22.	Auto Mechanics.....	260
23.	Billing Clerks.....	240
24.	Guards.....	240
25.	Secretaries (Legal).....	230

(Occupations Whose Annual Openings Due to Growth
Will be Less Than The Annual Separations)

1.	Compositors and Typesetters.....	-100
2.	Stenographers.....	- 60
3.	Bus Drivers	- 50
4.	Key punch, Data Entry Operators...	- 40
5.	Cabinet Makers.....	- 20
6.	Cosmetologists	- 20
7.	Bakers.....	- 10
8.	Barbers	- 10
9.	Drill Press Operators	- 10
10.	Furniture & Wood Finishers.....	- 10
11.	Grinding Machine Operators.....	- 10
12.	Upholsterers.....	- 10

Source: "Employment Requirements by Occupation
Industry 1976-1985" Occupational/Industry
Publication, Massachusetts Division of
Employment Security, December 1979.

RATIO OF ACTIVE APPLICANTS TO UNFILLED JOB OPENINGS
MASSACHUSETTS JOB MATCHING SERVICE

1975 - 1979

Table 6

	1975 JULY	1975 SEPT	1975 DEC	1976 MAR	1976 JULY	1976 SEPT	1977 MAR	1978 MAR	1978 DEC	1979 MAR	1979 JUNE	1979 SEPT
PROFESSIONAL, TECHNICAL & MANAGERIAL WORK												
00,01 Architecture & Engineering	11.3/1	6.1/1	11.7/1	5.0/1	7.4/1	4.3/1	1.6/1	2.2/1	1.6/1	1.9/1	1.9/1	1.7/1
02 Mathematics & Physical Sci.	7.8/1	6.4/1	7.4/1	3.9/1	5.4/1	2.9/1	1.3/1	2.3/1	2.8/1	2.6/1	3.0/1	3.4/1
04 Life Sciences	9.2/1	7.8/1	12.1/1	7.1/1	5.0/1	4.2/1	2.3/1	3.1/1	3.8/1	2.7/1	2.7/1	3.6/1
05 Social Sciences	23.7/1	21.0/1	28.4/1	22.7/1	16.7/1	10.6/1	6.6/1	7.1/1	7.3/1	3.9/1	9.5/1	14.9/1
07 Medicine and Health	2.9/1	2.7/1	2.4/1	2.1/1	3.9/1	1.9/1	1.5/1	2.3/1	2.4/1	3.2/1	2.1/1	1.5/1
09 Education	12.1/1	18.4/1	21.6/1	10.2/1	10.4/1	7.9/1	3.8/1	5.2/1	5.7/1	3.3/1	4.7/1	10.4/1
10 Museum, Library & Archival Sci	7.3/1	4.9/1	1.5/1	1.2/1	2.4/1	2.1/1	0.4/1	4.5/1	2.9/1	1.7/1	2.0/1	5.2/1
11 Law and Jurisprudence	22.2/1	12.7/1	32.0/1	21.4/1	23.0/1	11.0/1	4.9/1	5.5/1	5.1/1	5.5/1	5.4/1	5.6/1
12 Religion and Theology	15.0/1	8/0	16.0/1	21.0/1	18.0/1	21.0/1	6.0/1	20.0/1	-	15/0	18.0/1	15.0/1
13 Writing	35.5/1	16.2/1	63.7/1	25.3/1	20.0/1	8.0/1	4.1/1	9.2/1	6.6/1	7.4/1	12.9/1	10.1/1
14 Art Work	50.1/1	31.4/1	88.6/1	45.1/1	24.8/1	17.2/1	10.0/1	38.0/1	18.6/1	11.5/1	10.6/1	26.0/1
15 Entertainment & Recreation	18.3/1	12.2/1	17.7/1	7.7/1	7.8/1	5.2/1	5.1/1	5.4/1	10.6/1	4.9/1	3.8/1	8.0/1
16 Administrative Specialties	15.2/1	11.1/1	15.0/1	12.3/1	15.1/1	9.7/1	4.5/1	4.7/1	7.8/1	6.1/1	6.3/1	7.6/1
18 Managerial Work, NEC	15.5/1	10.7/1	23.6/1	18.1/1	15.2/1	9.1/1	6.2/1	9.0/1	7.7/1	6.6/1	6.6/1	6.9/1
19 Misc Professional, Technical & Managerial Work	6.3/1	5.6/1	7.7/1	3.9/1	4.3/1	2.8/1	1.9/1	2.1/1	2.2/1	1.5/1	1.8/1	2.7/1
CLERICAL AND SALES OCCUPATIONS												
20 Stenography, Typing, Filing & Related Work	6.7/1	3.3/1	8.5/1	5.6/1	5.2/1	4.6/1	2.6/1	2.8/1	4.3/1	3.8/1	4.5/1	4.4/1
21 Computing & Account Recording	16.3/1	8.3/1	13.6/1	9.0/1	15.5/1	7.8/1	4.5/1	4.0/1	6.7/1	7.0/1	8.4/1	5.8/1
22 Material & Production Recording	24.7/1	9.8/1	14.7/1	13.5/1	16.3/1	6.2/1	1.9/1	3.0/1	3.9/1	4.5/1	5.5/1	4.6/1
23 Information & Message Distr.	16.5/1	5.8/1	12.7/1	11.4/1	9.4/1	5.9/1	4.2/1	4.4/1	3.8/1	3.5/1	4.2/1	3.5/1
24 Misc Clerical Work	6.2/1	3.1/1	6.5/1	5.0/1	7.4/1	3.6/1	1.4/1	1.8/1	4.4/1	2.8/1	3.2/1	5.2/1
25 Saleswork Services	2.4/1	1.9/1	2.5/1	2.3/1	25.5/1	2.0/1	1.9/1	3.3/1	2.1/1	2.5/1	2.3/1	2.3/1
26, -28 Saleswork, Commodities	12.8/1	6.3/1	11.3/1	10.3/1	14.5/1	7.9/1	4.0/1	5.3/1	4.0/1	7.3/1	6.0/1	4.5/1
29 Misc Merchandising Work	9.0/1	7.2/1	7.9/1	10.5/1	9.3/1	5.6/1	3.3/1	5.7/1	3.2/1	6.4/1	8.5/1	2.9/1

RATIO OF ACTIVE APPLICANTS TO UNFILLED JOB OPENINGS
MASSACHUSETTS JOB MATCHING SERVICE

1975 - 1979

Table 6 (continued)

		1975 JULY	1975 SEPT	1975 DEC	1976 MAR	1976 JULY	1976 SEPT	1977 MAR	1978 MAR	1978 DEC	1979 MAR	1979 JUNE	1979 SEPT
SERVICE OCCUPATIONS													
30	Domestic Services	3.7/1	18.1/1	3.2/1	3.0/1	4.5/1	3.1/1	2.9/1	4.4/1	3.6/1	4.0/1	5.3/1	5.2/1
31	Food & Beverage Preparation & Service	10.5/1	3.7/1	9.3/1	7.0/1	9.0/1	4.4/1	3.4/1	9.3/1	4.0/1	5.8/1	5.9/1	3.5/1
32	Lodging and Related Services	7.1/1	1.9/1	8.3/1	5.0/1	4.8/1	2.8/1	2.3/1	3.8/1	3.0/1	2.0/1	2.2/1	2.9/1
33	Barbering, Cosmetology and Related Services	19.1/1	10.1/1	20.7/1	6.6/1	31.3/1	9.5/1	6.4/1	24.8/1	39.2/1	30.6/1	27.3/1	24.5/1
34	Amusement & Recreation Serv.	3.5/1	1.0/1	0.7/1	2.6/1	4.1/1	1.6/1	0.4/1	1.0/1	0.5/1	0.7/1	2.0/1	0.8/1
35	Misc Personal Services	17.5/1	9.2/1	12.9/1	9.1/1	10.2/1	6.5/1	4.1/1	4.5/1	4.4/1	3.8/1	4.4/1	5.3/1
36	Apparel & Furnishings Serv.	8.1/1	4.7/1	9.9/1	4.5/1	3.1/1	2.3/1	2.2/1	4.4/1	3.7/1	5.4/1	4.6/1	3.4/1
37	Protective Service	3.5/1	2.2/1	4.1/1	1.3/1	1.9/1	1.5/1	0.8/1	1.8/1	1.6/1	1.3/1	0.8/1	1.5/1
38	Building and Related	7.3/1	4.4/1	6.4/1	4.9/1	4.3/1	3.7/1	2.6/1	3.7/1	1.8/1	2.0/1	2.2/1	1.2/1
FARMING, FISHERY, FORESTRY AND RELATED													
40	Plant Farming	18.9/1	7.5/1	21.8/1	15.1/1	12.7/1	8.7/1	6.4/1	2.0/1	3.7/1	3.7/1	5.0/1	2.5/1
41	Animal Farming	42.9/1	28.0/1	91.0/1	20.2/1	25.3/1	14.7/1	17.8/1	14.5/1	16.9/1	23.4/1	14.2/1	16.4/1
42	Misc Farming & Related Work	130/0	101/0	127/0	82.0/1	69.5/1	127.0/1	44.3/1	51.0/1	12.8/1	16.7/1	10.6/1	42.0/1
43	Fishery & Related Work	75/0	15.3/1	21.3/1	50.0/1	26.3/1	65.0/1	50.0/1	9.3/1	-	-	-	-
44	Forestry	47.0/1	34.0/1	8.8/1	4.1/1	5.2/1	4.1/1	1.2/1	3.4/1	29.7/1	90.0/0	55.0/1	43.0/1
45	Hunting, Trapping & Rel. Serv.	1/0	0/0	1/0	0/0	0/1	1/0	1.0/1	2.0/1	2.0/1	1.1/1	3.3/1	1.1/1
46	Agricultural Services	3/0	4/0	4/0	6.0/1	3/0	4/0	5/0	0.3/1	-	0/1	-	-
PROCESSING OCCUPATIONS													
50	Metal Processing	11.6/1	7.5/1	12.8/1	21.6/1	10.1/1	6.6/1	0.8/1	4.1/1	2.1/1	2.8/1	2.4/1	3.2/1
51	Ore Refining & Foundry Work	27.2/1	15.6/1	13.2/1	15.3/1	7.6/1	11.0/1	4.7/1	8.3/1	3.1/1	6.6/1	6.4/1	3.9/1
52	Processing, Food & Rel. Prod.	10.8/1	4.9/1	9.7/1	9.0/1	4.4/1	5.8/1	5.5/1	6.4/1	6.3/1	7.0/1	7.2/1	5.1/1
53	Processing, Paper & Rel. Mat.	123/0	24.5/1	124/0	67.5/1	32.0/1	44.0/1	12.4/1	12.1/1	16.5/1	14.3/1	22.5/1	7.7/1
54	Processing, Petroleum & Rel. Prod	12/0	16.0/1	19/0	16/0	5.0/1	5.0/1	1.7/1	4.3/1	0.5/1	9.0/1	6.0/1	2.0/1
55	Processing, Chem & Rel. Prod.	5.9/1	5.7/1	6.7/1	4.5/1	9.1/1	7.1/1	4.9/1	5.6/1	2.7/1	4.4/1	3.4/1	2.4/1
56	Processing, Wood and Wood Prod	14.0/1	10/0	9.0/1	13/0	5/0	1.0/1	8.0/1	12/0	1.4/1	11.0/1	12.0/1	6.0/1
57	Processing, Nonmetallic and Related Products	70.5/1	22.6/1	111.5/1	38.9/1	31.0/1	15.8/1	8.8/1	15.3/1	8.5/1	4.8/1	4.7/1	2.1/1
58	Processing, Leather & Textiles	16.0/1	8.7/1	20.6/1	15.0/1	23.0/1	7.6/1	1.5/1	4.6/1	6.5/1	4.9/1	7.7/1	3.1/1
59	Processing, NEC	37.8/1	15.3/1	114.0/1	14.2/1	12.2/1	10.4/1	3.8/1	4.1/1	2.3/1	2.9/1	3.6/1	1.6/1

RATIO OF ACTIVE APPLICANTS TO UNFILLED JOB OPENINGS
MASSACHUSETTS JOB MATCHING SERVICE

1975 - 1979
Table 6 (continued)

		1975 JULY	1975 SEPT	1975 DEC	1976 MAR	1976 JULY	1976 SEPT	1977 MAR	1978 MAR	1978 DEC	1979 MAR	1979 JUNE	1979 SEPT
MACHINE TRADES OCCUPATIONS													
60	Metal Machining	12.5/1	7.4/1	16.4/1	9.9/1	2.0/1	3.3/1	2.0/1	2.1/1	1.3/1	1.5/1	1.7/1	1.8/1
61	Metal Working, NEC	17.2/1	11.5/1	17.5/1	11.9/1	10.5/1	5.3/1	3.5/1	4.3/1	4.0/1	3.9/1	3.5/1	2.8/1
62,63	Mechanical Repairing	11.7/1	7.4/1	5.5/1	11.1/1	11.6/1	6.9/1	1.8/1	5.8/1	3.6/1	4.4/1	5.0/1	3.9/1
64	Paperworking	15.3/1	10.1/1	14.0/1	9.9/1	7.4/1	4.0/1	2.9/1	2.8/1	3.0/1	4.3/1	5.7/1	4.0/1
65	Printing	13.4/1	7.0/1	18.9/1	10.4/1	0.5/1	0.5/1	4.2/1	6.3/1	2.6/1	3.0/1	3.4/1	2.2/1
66	Wood Machining	7.2/1	4.9/1	12.4/1	6.7/1	7.1/1	3.6/1	3.7/1	4.2/1	4.5/1	4.6/1	2.5/1	1.8/1
67	Machining, Nonmetallic Minerals and Related Materials	1.5/1	6.4/1	22.5/1	15.0/1	5.8/1	4.0/1	4.3/1	6.2/1	11.0/0	14.0/1	8.5/1	1.7/1
68	Textile Machine Work	5.2/1	3.3/1	7.2/1	4.1/1	3.0/1	2.5/1	1.9/1	3.6/1	2.4/1	2.3/1	2.3/1	2.4/1
69	Machine Work, NEC	6.6/1	4.8/1	9.4/1	9.7/1	5.4/1	3.2/1	2.4/1	5.8/1	3.0/1	3.7/1	4.1/1	3.4/1
BENCH WORK OCCUPATIONS													
70	Fabrication, Assembly, & Repair of Metal Products, NEC	15.0/1	4.4/1	23.0/1	11.4/1	9.3/1	5.4/1	4.0/1	4.0/1	3.7/1	6.1/1	4.3/1	2.5/1
71	Fab & Repair of Scientific & Med Apparatus, Photographic & Optical Goods, Watches and clocks	4.1/1	3.4/1	4.2/1	4.1/1	4.2/1	2.4/1	1.7/1	4.7/1	5.2/1	5.9/1	7.6/1	5.6/1
72	Assembly & Repair of Elect. Equip	6.7/1	3.3/1	8.3/1	7.1/1	4.3/1	3.3/1	1.9/1	3.1/1	2.4/1	2.9/1	2.5/1	2.6/1
73	Fab. & Repair of Prod made from Assorted Materials	19.0/1	4.4/1	17.6/1	4.0/1	4.8/1	3.1/1	2.6/1	2.9/1	2.5/1	6.9/1	9.3/1	5.1/1
74	Painting, Decorating & Rel Wrk.	11.2/1	5.5/1	12.1/1	10.1/1	9.3/1	3.7/1	3.4/1	7.0/1	5.3/1	12.5/1	8.4/1	4.4/1
75	Fab. & Repair of Plastics, Syn., Rubber & Rel Products.	22.5/1	4.3/1	15.1/1	3.4/1	25.1/1	11.2/1	6.5/1	7.7/1	3.0/1	3.8/1	3.8/1	3.9/1
76	Fab. & Repair of Wood Prod.	11.0/1	5.9/1	10.8/1	10.3/1	13.3/1	3.2/1	2.7/1	4.4/1	3.0/1	3.2/1	2.9/1	1.3/1
77	Fab & Repair of Sand, Stone Clay, & Glass Products	17.8/1	8.2/1	21.3/1	16.7/1	15.5/1	5.7/1	6.3/1	5.7/1	2.6/1	5.0/1	3.9/1	2.0/1
78	Fab. & Repair of Textile, Leather & Rel. Prod.	3.7/1	2.6/1	5.0/1	2.7/1	2.3/1	2.1/1	1.8/1	3.2/1	3.9/1	3.7/1	3.6/1	2.7/1
79	Bench Work, NEC	118.0/1	8.2/1	51.0/1	31.3/1	16.9/1	8.0/1	5.9/1	2.7/1	7.3/1	12.1/1	6.3/1	6.2/1

RATIO OF ACTIVE APPLICANTS TO UNFILLED JOB OPENINGS
MASSACHUSETTS JOB MATCHING SERVICE
1975 - 1979

Table 6 (continued)

	1975 JULY	1975 SEPT	1975 DEC	1976 MAR	1976 JULY	1976 SEPT	1977 MAR	1978 MAR	1978 DEC	1979 MAR	1979 JUNE	1979 SEPT
STRUCTURAL WORK OCCUPATIONS												
80 Metal Fabricating, NEC	10.8/1	7.7/1	15.9/1	12.0/1	2.8/1	2.0/1	2.3/1	3.6/1	2.9/1	4.1/1	3.7/1	3.1/1
81 Welding, Flame Cutting & Rel. Work	6.6/1	2.5/1	4.7/1	5.6/1	6.9/1	5.5/1	3.1/1	5.6/1	4.8/1	6.9/1	5.3/1	3.4/1
82 Elect Assembling, Installing, & Repairing	29.8/1	14.8/1	22.7/1	23.2/1	20.3/1	13.9/1	7.5/1	7.7/1	3.2/1	4.3/1	4.6/1	2.9/1
84 Painting, Plastering, Water-proofing, Cementing & Related Work	19.3/1	10.5/1	20.9/1	25.0/1	10.6/1	6.8/1	7.1/1	7.0/1	7.0/0	7.3/1	4.1/1	3.5/1
85 Excavating, Grading, Paving, and Related Work	7.8/1	5.7/1	6.1/1	7.0/1	1.8/1	2.2/1	2.3/1	1.5/1	7.9/1	18.9/1	9.1/1	6.2/1
86 Construction Work, NEC	29.0/1	16.4/1	27.4/1	24.6/1	15.3/1	7.2/1	7.0/1	5.4/1	2.1/1	6.0/1	4.1/1	3.1/1
89 Structural Work, NEC	7.7/1	5.7/1	9.1/1	5.3/1	3.7/1	2.8/1	2.5/1	3.6/1	2.4/1	1.9/1	1.6/1	2.1/1
MISCELLANEOUS WORK												
90 Motor Freight Trans.	35.2/1	17.3/1	32.0/1	27.8/1	31.1/1	15.3/1	7.2/1	7.6/1	2.1/1	2.7/1	2.3/1	2.0/1
91 Transportation Work, NEC	12.8/1	3.0/1	15.1/1	8.8/1	10.3/1	5.8/1	3.6/1	5.2/1	3.1/1	4.2/1	4.7/1	3.7/1
92 Packaging & Materials Handling	11.2/1	5.6/1	9.8/1	8.7/1	4.3/1	3.9/1	4.3/1	5.0/1	3.5/1	6.5/1	5.9/1	4.0/1
93 Extraction of Minerals	28/0	15.5/1	33.0/1	18.5/1	7.8/1	4.4/1	13.3/1	31.0/1	2.6/0	31/0	5.0/1	21.0/1
94 Logging	39.0/1	13.5/1	26.0/1	4.8/1	23.0/1	3.4/1	4.6/1	7.8/1	-	-	-	-
95 Production & Dist of Utilities	16.4/1	6.2/1	9.6/1	8.6/1	7.5/1	5.1/1	2.7/1	2.9/1	2.9/1	1.9/1	1.9/1	2.3/1
96 Amusement, Recreation & Motion Picture Work	5.5/1	2.1/1	61.0/1	10.4/1	72.0/1	4.9/1	1.7/1	3.4/1	9.2/1	2.0/1	9.8/1	9.8/1
97 Graphic Art Work	16.5/1	8.3/1	22.6/1	19.2/1	14.6/1	8.1/1	5.5/1	5.0/1	8.8/1	11.5/1	7.7/1	4.2/1

SOURCE: ESARS Table 96
PREPARED BY: Portia De Filippes, Economic Intern

Table 7: Occupations Offered by General Category by
Vocational - Technical Schools in Massachusetts

1. Appliance Repair	24. Engineering
2. Architectural Drafting	25. Health Occupations
3. Art and Design	26. Home Economics
4. Auto Body	27. Hotel Restaurant Management
5. Agriculture	28. Machine Shop
6. Air Conditioning	29. Marine Mechanics
7. Auto Mechanics	30. Maintenance
8. Business	31. Masonary
9. Cabinet Making	32. Painting and Decorating
10. Carpentry	33. Pattern Making
11. Commercial Art	34. Photography
12. Communications	35. Plastics
13. Consumer Economics	36. Plumbing
14. Construction - General	37. Power Mechanics
15. Cosmetology	38. Printing - Graphic Arts
16. Culinary Arts	39. Radio and Television
17. Data Processing	40. Recreation
18. Diesel Mechanics & Heavy Equip.	41. Sheet Metal
19. Distributive Education (retail)	42. Small Engines Repair
20. Drafting	43. Steam Engineering
21. Electrical	44. Upholstery
22. Electronics	45. Welding and Fabrication
23. Electro - Mechanical Technician	

Table 8 : Followup Distribution of Selected Vocational-Technical School Graduates
Class of 1979

Schools	2 Year Number of Graduates	4 Year Public College	2 Year Public College	4 Year Private College	Private College	Nurses Training	Other Post Secondary	Military	Work	Other	Info. Not Available
Attleboro Voc. Tech.....	153	7	11	15	5	0	0	15	90	10	0
C. H. Patten Voc. High (Beverly).....	70	3	2	0	1	0	0	1	63	0	0
Boston Tech. High.....	262	8	40	12	73	0	20	14	85	5	5
Boston Trade High.....	81	0	8	3	6	0	4	12	25	1	22
Chicopee Comprehensive High School.....	390	71	48	8	44	6	12	27	158	16	0
Holyoke Trade High School.....	52	1	0	0	0	0	0	4	44	0	3
Leominster Trade High School	48	1	0	0	0	0	0	1	46	0	0
Voc. Tech. Institute (Lynn)	267	15	23	0	0	0	3	15	154	32	25
Medford Voc. Tech. High School.....	104	1	0	1	0	0	6	0	85	11	0
Peabody Voc. High.....	110	0	0	0	0	0	12	0	98	0	0
Taunton High (Pittsfield).....	302	91	40	5	53	1	5	4	81	17	5
Pittsfield Vocational.....	124	15	1	5	1	0	0	4	98	0	0
Quincy Voc. Tech.....	193	15	8	4	2	1	8	5	117	2	31
Somerville Tech. Trade High	55	0	0	1	0	0	0	5	36	13	0
High School of Commerce (Springfield).....	413	77	21	7	27	1	8	17	196	51	8
Technical High (Springfield).....	334	64	21	0	36	2	4	57	136	12	2
Putnam Voc. Tech. (Springfield)	301	26	6	2	4	0	34	12	217	0	0
Waltham Voc. High.....	144	0	9	19	8	12	0	9	68	19	0
Westfield Voc. High.....	81	3	0	0	0	1	0	6	70	1	0
Weymouth Voc. Tech. High.....	135	2	1	8	2	0	5	11	93	6	7
Smith Voc. Agr. High (Northampton).....	98	6	0	0	0	0	24	15	52	1	0
Worcester Trade Complex	381	32	14	11	4	0	10	24	245	25	16
Dighton Rebooth Reg. Voc.....	25	0	0	0	0	0	0	1	23	0	1
Tantasqua Reg. Voc. (Sturbridge).....	24	1	0	0	0	0	0	2	21	0	0
Assabet Valley Voc. High (Marlborough)	296	10	15	10	9	2	1	12	233	4	0

Table 8 : Followup Distribution of Selected Vocational-Technical School Graduates
Class of 1979
(continued)

Schools	Number of Graduates	4 Year Public College	2 Year Public College	2 Year Private College	4 Year Private College	Nurses Training	Other Post Secondary	Military	Work	Other	Info. Not Available
Blackstone Voc. Tech. (Upton).....	163	2	4	5	7	0	7	11	121	0	6
Blue Hills Reg. Voc. Tech. (Canton).....	209	9	8	3	9	2	31	8	123	6	10
Bristol-Plymouth Voc Tech. (Taunton).....	160	8	4	0	6	1	8	7	126	0	0
Cape Cod Reg. Voc. Tech. (Hartwich)	179	14	1	5	6	0	3	4	132	0	14
Franklin County Tech. (Turner Falls)	180	14	0	1	0	0	1	6	131	27	0
Dinmar Reg. Voc. Tech. (Fall River).....	203	12	8	3	0	0	1	32	147	0	0
Gr. Lawrence Reg. Voc. Tech. (Andover)	368	37	6	3	0	4	3	13	302	0	0
Gr. New Bedford Voc. Tech. (New Bedford).....	257	17	7	6	1	2	9	11	204	0	0
Gr. Lowell Reg. Voc. Tech. (Tyngsborough)....	588	35	4	6	2	8	4	27	480	22	0
Joseph P. Keefe Tech. (Framingham).....	210	3	3	16	6	3	1	5	167	1	5
Minuteman Voc. Tech. (Lexington).....	229	16	4	10	7	0	17	6	116	35	18
Montachusett Voc. Tech. (Fitchburg)	218	9	5	2	2	3	12	4	167	3	11
Charles H. McCann Tech. (North Adams).....	81	6	3	3	2	0	3	12	52	0	0
Nashoba Valley Tech. (Westford).....	147	5	2	0	0	0	0	11	126	3	0
Northeast Metro Reg. Voc. (Wakefield)	287	11	7	4	6	0	4	16	239	0	0
North Shore Reg. Voc. (Beverly).....	136	6	0	7	2	0	4	7	108	2	0
Old Colony Reg. Voc. (Rochester).....	98	4	2	2	3	0	1	2	84	0	0
Pathfinder Voc. Tech. (Palmer).....	71	8	0	0	0	0	1	6	56	0	0
Shawshen Valley Voc. Tech. (BillERICA).....	353	18	13	8	8	0	0	9	281	16	0
Southeastern Reg. Voc. Tech. (South Easton)...	245	10	4	2	1	4	9	9	206	0	0
South Shore Voc. Tech. (Hanover).....	66	2	2	1	3	0	0	4	54	0	0
Bay Path Voc. High (Worcester).....	204	4	2	2	0	0	0	14	160	22	0
Upper Cape Cod Voc. Tech. (Bourne).....	116	4	4	1	2	0	4	10	79	12	0
Whittier Reg. Voc. (Haverhill).....	312	16	2	1	5	0	2	8	266	12	0
Total.....	9,523	719	363	202	353	53	281	515	6,461	387	189
Percent Distribution	100.0	7.6	3.8	2.1	3.7	0.6	2.9	5.4	67.8	4.1	2.0

Source: Massachusetts Department of Education.

Table 9
Energy and Nonenergy Intensive Industries

Industry	Occupations In the Industry For Which Vocational Education/ Technical Training Is Desirable
<u>Nonenergy Intensive Industries</u>	
Fabricated Metal Products	Drafter, Engineering Technician, Machinist, Machine Tool Operator, Electroplater, Tool and Die Maker, Punch-Press Operator, Drill-Press Operator, Lathe Operator, Grinding Machine Operator, Sheet Metal Worker, Welder, Filer/Grinder
Nonelectrical Machinery	Drafter, Electronic Technician, Tool and Die Maker, Machine Tool Operator, Machinist, Grinding Machine Operator, Drill-Press Operator, Lathe Machine Operator, Maintenance Mechanic, Welder, Filer/Grinder/Buffer, Secretary.
Electrical and Electronic Machinery	Machine Tool Operator, Machinist, Tool and Die Maker, Electroplater, Tester, Welder, Electronic Wirer, Electronic Assembler, Secretary, Typist
Instruments	Electrical/Electronic Technicians, Machinist, Machine Tool Operator, Machine Operator, Instrument Assembler, Accounting Clerk, Secretary, Typist
<u>Energy Intensive Industries</u>	
Paper and Allied Products	Industrial Truck Operator, Machine Setter, Paper Machine Winder, Slitting Machine Operator, Press Operator, Secretary
Chemical and Allied Products	Science Technicians, Maintenance Mechanics, Chemical Operator, Mixer/Blender, Grinder Operator, Accounting Clerk, Secretary, Typist
Primary Metal Industries	Machine Tool Operator, Machinist, Filer/Grinder/Buffer, Molder, Inspector

A P P E N D I X

The Demand for Machinists

In the summer of 1978, the Labor Area Research Department conducted special labor demand and supply analysis studies of the occupation of machinist and apprentices. Throughout the state, particularly the Boston Standard Metropolitan Statistical Area, the Worcester Labor Market Area, and the Lowell Labor Market Area, employers expressed an unmet demand for machinists.

The increase in demand for machinists is evident in both the ratio of applicants to job openings listed with Job Bank and the increase in the percent of machinist job openings unfilled. The ratio of machinists registering with the Job Matching Service in December 1979 to job openings for machinists is less than four to one for the Boston Metropolitan Area. In December 1979, seventy-two percent of the machinists positions listed with Job Bank remained unfilled as compared with forty-three percent in December, 1978.

The increase in the demand for machinists can be attributed to three factors:

1. retirement of large numbers of machinists
2. a shift in the occupational profiles of many industries which employ machinists
3. the rapid growth of industries in which machinists are prevalent

Ninety-four percent of the annual demand for machinists in the Boston SMSA will be due to separations from employment. Of the projected 760 annual total demand statewide through 1985, seventy-five percent will be due to separations. Field studies indicate that large numbers of machinists are of retirement age. Those machinists who started to work in the 1930's are presently retiring. The large infusion of machinists who entered industry after World War II will be eligible to retire within the next ten years. Because machining has been a well paid and satisfying job, many machinists have been employed with the same employer from twenty to forty years. Their retirements have created an increased demand.

Between 1974 and 1977, the shift in the occupational profiles of industries such as the fabricated metal products industry resulted in both an increase in absolute numbers and the percent employment of machinists of the total industry. The occupational profile developed on 1974 employment figures indicated that the 590 machinists employed in the fabricated metal products industry represented 1.19 percent of employment in the industry. By 1977, the 1040 machinists in fabricated metals represented 2.03 percent of industry employment. In some industries, the

introduction of computerized numerically controlled tools and computerized lathes (numerical tape machines) reduced the number of machine operators needed, thus increasing the percentage representation of machinists in the industry.

Of the ten industries with the largest number of machinists employed statewide, all exhibited increased growth from 1975 through 1978. The electronic components and accessories industry added an additional 12,115 jobs and office computing and accounting machinery added 10,405 jobs. Seventy percent of these ten industries were either recession resistant or recession resilient. The measuring and controlling instruments industry continued to increase employment throughout the recession. Other industries such as the aircraft and parts industry quickly recovered and surpassed their prerecession levels. Thus, these industries needed additional machinists as their employment levels grew. The solutions to our energy and defense problems will create additional job openings for machinists at many high-technology firms. The engineers and systems analysts conceptualize solutions to these problems and the machinist translates these ideas into a concrete product. They generate jobs for machine operators who produce products for sale or internal industrial use.

The increase in demand for machinists was demonstrated in the most recent occupational projections. Projections based on 1974 employment levels and published in 1976 indicated an annual total demand of 355 machinists and apprentices statewide. Current occupation projections based on 1976 employment levels indicate the annual total demand for machinists will be 760, an increase of 405 per year.

In the field survey conducted in the summer of 1978, employers indicated that demand for machinists was so great that they were hiring students part-time and summers, recalling retired employees, and "pirating" from other employers. Many employers commented favorably on vocational-technical schools preparation of entry level machinists. In addition, employers were pleased with apprenticeship training for which general course graduates are eligible to apply.

The industries with the largest number of machinists are: measuring and controlling instruments, miscellaneous machinery except electrical, metalworking machinery, electronic components and accessories, special industry machinery, aircraft and parts, miscellaneous plastic products, (costume jewelry and notions), optical instruments and lenses, office computing and accounting machinery, and cutlery, hand tools and hardware.

The Demand for Electrical/Electronic Technicians

The increase in demand for electrical/electronic technicians is evident in the ratio of applicants to job openings listed with Job Bank. The ratio of electronic technicians registering with the Job Matching Service in December 1979 to job openings for electronic technicians is less than 1.3 to 1 for the Boston Standard Metropolitan Statistical Area.

The increase in the demand for electronic technicians can be attributed to two factors:

1. a shift in the occupational profiles of many industries which employ electronic technicians.
2. the rapid growth of industries in which electronic technicians are prevalent.

The increase in demand for electronics technicians was demonstrated in the most recent occupational projections. Projections based on 1974 employment levels and published in 1976 indicated an annual total demand of 266 electronic technicians statewide of which sixty percent are due to growth. Current occupational projections based on 1976 employment levels indicate the annual total statewide demand for electronic technicians will be 680, of which eighty-four percent are due to growth.

Between 1974 and 1977, the shift in the occupational profiles of industries such as cutlery, handtools, and general hardware and communications equipment resulted in both an increase in absolute numbers and the percent employment of electronic technicians of the total industry employment. The occupational profile of the scientific instruments industry developed on 1974 employment figures indicated that the 610 electronic technicians represented 1.46 percent of statewide employment in the industry. By 1977, the 1,100 electronic technicians in the scientific instruments industry represented 2.16 percent of the industry employment.

Of the ten industries with the largest numbers of electronic technicians employed, all exhibited increased growth from 1975 through 1978. The electronic components and accessories industry added an additional 12,115 jobs statewide and office computing and accounting machinery added 10,405 jobs. All of these ten industries were either recession resistant or recession resilient. The measuring and controlling instrument industry continued to increase employment throughout the recession. Other industries such as the radio and TV Receiving Equipment industry quickly recovered and surpassed their prerecession levels. Thus, these industries needed additional electronics technicians as their employment levels grew. The solutions to our energy, defense, and productivity problems will create additional job openings for electronic

technicians at many high-technology firms located in the Boston SMSA and the adjacent Marlborough and Lowell Labor Market Areas.

The industries with the largest numbers of electronic technicians are: electronic components and accessories, office computing and accounting machinery, guided missiles, communication equipment, machinery except electrical, business services, optical instruments, engineering and scientific instruments, measuring and controlling instruments, and engineering services.

Massachusetts Community Colleges

Berkshire Community College	Pittsfield
Bristol Community College	Fall River
Bunker Hill Community College	Charlestown (Boston)
Cape Cod Community College	West Barnstable
Greenfield Community College	Greenfield
Holyoke Community College	Holyoke
Massachusetts Bay Community College	Wellesley Hills
Massasoit Community College	Brockton
Middlesex Community College	Bedford
Mount Wachusett Community College	Gardner
Northern Essex Community College	Haverhill
North Shore Community College	Beverly
Quinsigamond Community College	Worcester
Roxbury Community College	Roxbury (Boston)
Springfield Technical Community College	Springfield

1978-1979

CAREER

HEGIS
NO.

No. Name of Program

BUSINESS	5001.	Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massasoit	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
1. Administrative Assistant	5001.											2	3			
2. Administrative Assistant — Education	5001.												3			
3. Banking and Finance	5001.						3						3			2
4. General Business	5001.	2	2					2	2	2	2	2				2
5. Business Technology	5001.										2			2		
ACCOUNTING	5002.															
6. Accounting Associate	5002.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
AGRICULTURAL BUSINESS	5402.01											**				
7. Agricultural Industries	5402.01															
8. Arboriculture	5402.02							2								
AGRICULTURE TECHNOLOGIES	5402.03															
9. Floriculture	5402.03										**					
10. Garden Center Management	5402.04															
11. Horticultural Commodities	5402.08										**					
12. Horticulture	5402.							2								
13. Landscape Technology	5402.05							2								2
14. Natural Resources Management	5401.						1				**					
15. Nursery Management	5402.06							2								

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1978-1979

CAREER

HEGIS

No. Name of Program

No.

		Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massachusetts	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quincy/Ramond	Roxbury	Springfield
16. Turf Management	5402.08															
DATA PROCESSING	5101.															
17. Business Data Processing	5101.	1			2	2		2	2	2	2	2		1		2
18. Computer Programming	5103.		1				2	2					2			2
19. Key Punch Operator (1 yr)	5103002															
HOTEL-MOTEL AND FOOD SERVICE	5010.	1		2	2		1									
20. Culinary Arts	5404.1						3				**					
21. Food Science & Nutrition							1				**					
22. Food Service Management	5404.03											1				
MANAGEMENT	5004.															
23. Building & Plant Management	5004.			3												
24. Business Management	5004.	2				2	2		2	2	2	2	2	2		2
25. Industrial Management	5004.02							2	2	2	2					
26. Nursing Home Management	5218.							3								
27. Office Management							1			2						
28. Retail Food Distribution Management	5404.04															
29. Small Business Management	5004.03							2								1
30. Retail Management				2			1	2		2				2	1	
31. General Management					2			2		2				2	2	2

KEY — 1-Day only; 2-Day and Evening; 3-Evening only; ** Apply at Essex Agricultural Tech

1978-1979 CAREER

No. Name of Program HEGIS
NO.

MARKETING	Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massasoit	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
32. Fashion Merchandising									1		2				
33. Insurance			2								2				
34. Marketing		2			2			2	2	2	2				2
35. Real Estate			2				2				2				
36. Retailing				2					2	2					
MEDIA TECHNOLOGY					1										
37. Commercial Art	1														
38. Electronic Media-Production Technician (TV)															1
39. Radio Technician															
40. Telecommunications Technician															1
41. Public Communications Technology										1					1
GRAPHIC & VISUAL COMMUNICATION															2
42. Design & Illustration			1		1										
43. Graphic Arts (Commercial Art) Technology															
44. Journalism		1													
45. Photography & Media Production															
46. Printing Management			1												2
OFFICE EDUCATION															

KEY — 1-Day only; 2-Day and Evening; 3-Evening only; * Apply at Essex Agricultural Tech

1978-1979

CAREER

HEGIS

No. Name of Program

NO.

		Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massachusetts	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
47. Court Reporting	5005.03							2								1
48. Office Assistant (1 yr)	5005.04					1			2	3	2	2				1
49. Administrative Services Management (1 yr)							1									
50. Office Services											2					
SECRETARIAL																
51. Administrative -- Word Processing												2				
52. Bilingual (1 yr)	5005.11	3	1													1
53. Executive	5005.12	1	2	2	2	1	2	1	2	2	2	2	2	2	2	1
54. General	5005.13							3	2	2	2		3			3
55. Legal	5005.14	2	2	2	2	1	2	1		2	2	2	2		1	1
56. Medical	5005.15	2	1	1	2	1	2	1	1	2	2	2	2		1	1
57. Statistical	5005.16												2			
58. Technical	5005.17							1					1			1
TRANSPORTATION																
59. Aviation Science	5302.											2				
60. Air Transportation	5011.01			1												
61. Mass (urban) Transportation	5011.02			1												
62. Motor Freight (Rail/Truck)	5011.03			1												
ENGINEERING	5301.															

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1978-1979 CAREER

No. Name of Program HEGIS NO.

	Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massasoit	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
63. Architectural Technology															2
64. Building & Plant Management															
65. Construction & Building															
66. Interior Design			3												
67. Kitchen Design															
68. Heating Power & Air Conditioning															2
69. Civil Technologies 5309.		1			1							1			2
70. Land Surveying 5309.		1													
71. Drafting Assistant (1 yr) 5304		1						1							
72. Electro-Mechanical Drafting (1 yr)									1						
73. Chemical Technology 5305.															
ELECTRONIC TECHNOLOGIES															
74. Electro-Mechanical Technology 5311.		2						2		2	2				1
75. Cable TV Technician 5008.															
76. Computer Maintenance & Service Technician															1
77. Electrical Repair & Maintenance Assistant 5310.															
78. Electrical Technology 5310		2													2
79. Electronic Benchwork Technician 5310.															1
80. Electronic Engineering Assistant 5310.		1													

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CAREER

HEGIS
NO.

No. Name of Program

No.	Name of Program	HEGIS NO.										
			Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massachusetts	Middlesex	North Shore
81.	Electronic Technology	5310.	1					2		2	1	2
82.	Laser Electro-Optics Technology	5399.										1
83.	Two-way Radio Technician											
INSTRUMENTATION TECHNOLOGY												
84.	Bio-Chemical Technician	5314.										
85.	Bio-Medical Technician	5314.										1
MECHANICAL TECHNOLOGIES												
86.	Advanced Metal Machinery Technology											2
87.	Automotive Technology	5306.								1	2	1
88.	Engineering Technology	5301.					1			2		
89.	Industrial Technology	5312.				3						1
90.	Manufacturing Engineering	5301.								3		
91.	Machine & Tool Design Technology	5303.										2
92.	Mechanical Engineering	5301.	1							2		
93.	Mold Making (Mechanical Technology)	5301.	1									
94.	Plant Engineering											
95.	Quality Control (1 yr)											
HEALTH												
96.	Dental Technologies											

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CAREER

HEGIS

No. Name of Program

NO.

		Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massasoit	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quincy/Amund	Roxbury	Springfield
97. Dental Assistant (1 yr)	5202.									1						1
98. Dental Hygiene	5203.	1			1					1				1		1
99. Dental Laboratory Technology	5204.								1	1						
100. Air Quality	5408.01															1
101. Conservation Technology	5499.															
102. Environmental Technology	5408.02	2					1						1	3		1
103. Pest Control	5408.03															1
104. Public Environmental Health Technician	5408.04											3		3		
105. Solid Waste Disposal	5408.05															1
106. Water Quality	5408.07															1
107. Medical Laboratory Technician		1						1		1						1
MEDICAL RECORDS TECHNOLOGY	5213.															
108. Medical Transcriptionist	5214.02				3			3		2		2				
109. Medical Records Technology	5213.						1	2					1			
NURSING																
110. Nurse Assistant (1 yr.) (LPN)	5299.01															
111. Nurse Education (RN)	5208.	1	1	1	1	1	1	1	1	1	1	1	2	1		2
112. RADIOLOGIC TECHNOLOGIES																
113. Nuclear Medical Technician	5207.01			1												1

HEGIS
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HEGIS
NO.

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KEY — 1-Day only; 2-Day and Evening; 3-Evening only; ** Apply at Essex Agricultural Tech

1978-1979 CAREER

No. Name of Program
HEGIS NO.

		Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massachusetts	Middlesex	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
130. Youth Services Associate		1													
131. Social Service Associate	5506.04	1													
132. Child Care			1						2						
133. Children with special needs									2						
134. Probation									2						
135. Public Administration	5508.01								2						
136. Social Welfare									2						
HUMAN SERVICES WITH OPTIONS															
137. Cosmetology Management	5006.01														
138. Cosmetology Assistant (1 yr)	5006.02													1	
139. Early Childhood Education		1			1	1	1	2	2		1	1	2	2	
140. Early Childhood Education (1 yr)	5503.01									3					
141. Drug & Alcoholic Rehabilitation	5299.03								3						
142. Educational Assistant	5503.03										3				
143. Geriatric Associate	5299.04	1			3						2	3			
144. Mental Health Associate	5216.01	1	3						2	1	1			1	
145. Social Service Associate	5506.04								3						
146. Social Work Associate (1 yr)	5506.05									3					
147. Legal Assistant										3					

KEY -- 1-Day only; 2-Day and Evening; 3-Evening only; ** Apply at Essex Agricultural Tech

1978-1979

CAREER

HEGIS

NO.

Name of Program

CAREER		HEGIS NO.		Name of Program														
No.		Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massachusetts	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quincy/Amund	Roxbury	Springfield		
148.	Recreation Leadership	●				●		●										
149.	Educational Assistant (language Communication Opt)												●					
SPECIAL EDUCATION																		
150.	Language Communication Assistant												●					
151.	Deafness Communication												●					
LEARNING RESOURCES CENTER TECHNOLOGIES																		
152.	Audio-Visual (Media Technology)																	
153.	Library Assistant (1 yr)		●															
154.	Library Associate		●															
PROTECTIVE SERVICES ADMINISTRATION																		
155.	Conservation Law Enforcement																	
156.	Corrections						●				●							
157.	Criminal Justice	●		●	●													
158.	Law Enforcement		●			●	●	●	●	●	●	●	●	●	●	●		
159.	Occupational Safety & Health Technology										●	●			●	●		
160.	Security Administration												●					
161.	Fire Protection & Safety Technology	●	●	●	●	●		●	●	●	●	●	●	●	●	●		
PUBLIC ADMINISTRATION																		
162.	Community Planning & Development																	
	5508.01																	

No.	Name of Program	HEGIS NO.
1	1960-61	1960-61
2	1961-62	1961-62
3	1962-63	1962-63
4	1963-64	1963-64
5	1964-65	1964-65
6	1965-66	1965-66
7	1966-67	1966-67
8	1967-68	1967-68
9	1968-69	1968-69
10	1969-70	1969-70
11	1970-71	1970-71
12	1971-72	1971-72
13	1972-73	1972-73
14	1973-74	1973-74
15	1974-75	1974-75
16	1975-76	1975-76
17	1976-77	1976-77
18	1977-78	1977-78
19	1978-79	1978-79
20	1979-80	1979-80
21	1980-81	1980-81
22	1981-82	1981-82
23	1982-83	1982-83
24	1983-84	1983-84
25	1984-85	1984-85
26	1985-86	1985-86
27	1986-87	1986-87
28	1987-88	1987-88
29	1988-89	1988-89
30	1989-90	1989-90
31	1990-91	1990-91
32	1991-92	1991-92
33	1992-93	1992-93
34	1993-94	1993-94
35	1994-95	1994-95
36	1995-96	1995-96
37	1996-97	1996-97
38	1997-98	1997-98
39	1998-99	1998-99
40	1999-00	1999-00
41	2000-01	2000-01
42	2001-02	2001-02
43	2002-03	2002-03
44	2003-04	2003-04
45	2004-05	2004-05
46	2005-06	2005-06
47	2006-07	2006-07
48	2007-08	2007-08
49	2008-09	2008-09
50	2009-10	2009-10
51	2010-11	2010-11
52	2011-12	2011-12
53	2012-13	2012-13
54	2013-14	2013-14
55	2014-15	2014-15
56	2015-16	2015-16
57	2016-17	2016-17
58	2017-18	2017-18
59	2018-19	2018-19
60	2019-20	2019-20
61	2020-21	2020-21
62	2021-22	2021-22
63	2022-23	2022-23
64	2023-24	2023-24
65	2024-25	2024-25
66	2025-26	2025-26
67	2026-27	2026-27
68	2027-28	2027-28
69	2028-29	2028-29
70	2029-30	2029-30
71	2030-31	2030-31
72	2031-32	2031-32
73	2032-33	2032-33
74	2033-34	2033-34
75	2034-35	2034-35
76	2035-36	2035-36
77	2036-37	2036-37
78	2037-38	2037-38
79	2038-39	2038-39
80	2039-40	2039-40
81	2040-41	2040-41
82	2041-42	2041-42
83	2042-43	2042-43
84	2043-44	2043-44
85	2044-45	2044-45
86	2045-46	2045-46
87	2046-47	2046-47
88	2047-48	2047-48
89	2048-49	2048-49
90	2049-50	2049-50
91	2050-51	2050-51
92	2051-52	2051-52
93	2052-53	2052-53
94	2053-54	2053-54
95	2054-55	2054-55
96	2055-56	2055-56
97	2056-57	2056-57
98	2057-58	2057-58
99	2058-59	2058-59

-51-

KEY — 1-Day only; 2-Day and Evening; 3-Evening only; * Apply at Essex Agricultural Techn

1978-1979

TRANSFER

HEGIS

No. Name of Program

NO.

	Berkshire	Bristol	Bunker Hill	Cape Cod	Greenfield	Holyoke	Mass. Bay	Massasoit	Middlesex	Mt. Wachusett	North Shore	Northern Essex	Quinsigamond	Roxbury	Springfield
BUSINESS	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Business Education		•				•	•		•	•					
Education		•		•		•			•				•	•	•
Engineering	•	•	•	•	•	•						•	•		•
Fine Arts — Visual & Graphic Arts	•				•	•				•					
Liberal Arts	•	•	•	•	•	•	•	•	•	•	•	•	•		•
Liberal Arts — Data Processing Concentration				•	•										
Science			•	•		•							•	•	•
Physical Education (& Athletic Training Option)	•														
Liberal Studies/General Studies	•					•		•	•	•	•			•	•
Library Science		•													
Pre-Professionals		•				•				•					
English														•	
Social Science														•	
Theater Arts	•									•					
Secretarial Science		•										•			
Music Education						•									

Syllabus of Studies in the Vocational Education Field

1. "A Description of the Methodologies Used in Developing a Labor Market Information Package for the Division of Occupational Education" - a Research Paper prepared by Christine Le Cam, Robert Vinson, and Pamela Frugoli of the Research and Program Development Division of the State Department of Manpower Development. January 1979
2. "A Description of the Methodologies of Data Sources Used in Constructing the Preliminary Occupational Demand-Supply Table for the State of Massachusetts" - a Research Paper prepared by Christine Le Cam and Andrew Sum of the Research and Program Development Unit of the State Department of Manpower Development. February 1978
3. "Employment Requirements for Massachusetts by Industry 1970-1985," 1976 by O.E.S. Unit of the Occupation/Industry Research Department D.E.S.

Similar studies are also available for the ten large LMA's.

4. "Dictionary of Occupational Titles" - 4th edition 1977, U. S. Department of Labor, ETA, U. S. Employment Service
5. "Characteristics of Applicants Registered in Employment Service Offices and Selected Employment Service Activities Massachusetts," cumulative October 1978 through June 1979. Issued by Labor Area Research Department of DES.
6. "Issues in the Development of a Comprehensive Occupational Information System for Planning Employment and Training Programs at the State and Local Level: Current Research Efforts within the State of Massachusetts" by Andrew Sum, P. K. Sawhney, and Irwin Herrnstadt, a report prepared for the Fifth Annual New England Business and Economic Development Conference, Wakefield. 1977
7. "Occupational Outlook Handbook, 1978-1979 Edition, Bulletin 1955, U. S. Department of Labor, BLS.

8. "Data Sources on Enrollment in and Completion from Public Vocational Programs in the Boston Metropolitan Area", a paper presented to the Occupation/Industry Research Department of the Mass. DES in August 1977.
9. "An Inventory of the Labor Market Supply Generated by Secondary and Post-Secondary NonProfessional Education Institutions"; by Lowell University's Department of Economics.
10. "Matching Occupational Classifications to Vocational Education Program Codes", U. S. Department of Labor, BLS, Washington, 1975
11. "Matching Occupational Supply and Demand Data With State and Labor Markets: Alternative Methods for Allocating Vocational Education Program Graduates Among Their Related Census Occupations" - by Christine Cormier, Andrew Sum and P. K. Sawhney. A report prepared for the Mass. DES.
12. Occupational Code Conversions, 3 Volumes, by California Employment Development Department.
13. "Education/Occupational Cross-Code Index" by Donald James, prepared by Southeastern Mass. University Foundation, Inc. for the Commonwealth of Massachusetts Executive Office of Educational Affairs, May 1978.
14. "A Taxonomy of Instructional Programs in Higher Education" by the National Center for Education Statistics, U. S. Office of Education. Department of H.E. W., 1970.
15. "Standard Terminology for Curriculum and Instruction in Local and State School Systems", U. S. Office of Education, State Educational Records and Report Series, 1970.
16. "Matching Occupational Classifications to Vocational Education Program Codes", U. S. Department of Labor, BLS, Revised, 1975.
17. "Career Programs", Mass. Board of Regional Community Colleges"
No date.
18. "Vocational Education and Occupations", U. S. Department H. E. W. and U. S. Department of Labor, Washington, 1969.
19. "Suffix Codes for Jobs Defined in the Dictionary of Occupational Titles", 3rd Edition, U. S. Department of Labor
20. Alphabetical Index of Occupations and Industries, U. S. Bureau of the Census, Washington, 1971.

21. "Manpower Data Packages for Planning Employment and Training Programs Based Upon the 1976 Survey of Income and Education" for the State Department of Manpower Development, June 1978.
22. Same study as in 21, and for the Springfield SMSA.
23. "A Descriptive Analysis of the Methodology Used to Estimate Institutional Supply by Occupation Originating From Vocational Education ", April 1978, Pamela Frugoli, David Lockhart and Christine LeCam, DMD.
24. "The Role of Unemployment - Insurance Based Data Source in Planning Employment and Training Programs at the Local Level," July 1978, Russell Ganz and Andrew Sum, DMD.
25. "Issues in the Development of a Comprehensive Occupational Information System for Planning Employment and Training Programs at the State and Local Level: Current Research Efforts Within the State of Massachusetts", - Research and Program Development, Department of Manpower Development and the Department of Economics, Northeastern University, October 1977.
26. "Employment Requirements by Occupation, by Industry, 1976-1985, by Job Market Research, Mass. DES, December 1979.
27. "Occupational Profile of Selected Nonmanufacturing Industries in Massachusetts, 1978, published 1980.
28. Vocational Education Planning and Workforce Information Report for Boston SMSA, published 1980.
29. Similar Report for Brockton SMSA.
30. Similar Report for Fall River LMA.
31. Similar Report for Fitchburg-Leominster SMSA.
32. Similar Report for Lawrence-Haverhill SMSA.
33. Similar Report for Lowell LMA.
34. Similar Report for New Bedford LMA.
35. Similar Report for Pittsfield LMA.
36. Similar Report for Springfield-Chicopee-Holyoke LMA.

37. Similar Report for Worcester LMA.
38. "The Variety and Distribution of Occupations in Massachusetts An Occupational Profile of the Employed Worker", on a 1976 base, by Mass. Div. of Employment Security, Occ/Ind. Res. Department, March 1980.
39. "Labor Market Information Package Prepared for the Barnstable Labor Market Area, Mass. Department of Manpower Development, Division of Policy and Evaluation, January 1980.
40. Similar study for the Boston Labor Market Area, January 1980.
41. Brockton Labor Market Area, January 1980.
42. Fall River Labor Market Area, January 1980.
43. Fitchburg Labor Market Area, January 1980.
44. Greenfield/Athol Labor Market Area January 1980.
45. Lawrence Labor Market Area, January 1980.
46. Lowell Labor Market Area, January 1980.
47. New Bedford Labor Market Area, January 1980.
48. Pittsfield Labor Market Area, January 1980.
49. Springfield Labor Market Area, January 1980.
50. Worcester Labor Market Area, January 1980.

51. U. S. Department of Commerce, Bureau of the Census, 1970 Census of Population Alphabetical Index of Industries and Occupations, U. S. Government Printing Office, Washington, D.C. 1971.
52. U. S. Department of Commerce, Bureau of the Census, 1970 Census of Population Classified Index of Industries and Occupations, U. S. Government Printing Office, Washington, D.C., 1971.
53. U. S. Department of Health, Education and Welfare and the U. S. Department of Labor, Manpower Administration, Vocational Education and Occupations, U. S. Government Printing Office, Washington D.C. 1969.
54. U. S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Supplement 3 (Revised), Matching Occupational Classifications to Vocational Education Program Codes, U. S. Government Printing Office, Washington D.C., 1975.
55. U. S. Department of Labor, Manpower Administration, Dictionary of Occupational Titles, Volumes I and II, U. S. Government Printing Office, Washington D.C. 1965.
56. U. S. Department of Labor, Manpower Administration, Suffix Codes for Jobs Defined in the Dictionary of Occupational Titles, Third Edition, U. S. Government Printing Office, Washington, D. C. 1967.

Other information and reports available from the following sources:

57. Educational Resources Information Center (ERIC)
National Institute of Education
1200 19th Street N.W.
Washington, D.C. 20208
58. National Center for Research in Vocational Education
Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

This center contains an extensive Research Library and also the ERIC (see item 55 above) Clearinghouse on Adult, Career, and Vocational Education.

59. National Center for Education Statistics
400 Maryland Avenue S.W.
Washington, D.C. 20202

